R E P O R T R E S U M E S

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PROGRAMED INSTRUCTION IN LARGE SCHOOL SYSTEMS.

AMERICAN ASSN. OF SCHOOL ADMINISTRATORS

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DESCRIPTORS- *PROGRAMED INSTRUCTION, *INSTRUCTIONAL INNOVATION, *PROGRAMED MATERIALS, INDIVIDUALIZED CURRICULUM, EDUCATIONAL EXPERIMENTS, NATIONAL SURVEYS, INSTRUCTIONAL PROGRAMS, *TEACHING MACHINES, PROGRAMED TEXTS, PROGRAMED UNITS, INDIVIDUALIZED PROGRAMS, AUTOINSTRUCTIONAL AIDS, *PUBLIC SCHOOL SYSTEMS, SUMMER PROGRAMS, ENRICHMENT PROGRAMS, REMEDIAL PROGRAMS, PHYSICALLY HANDICAPPED, SCHOOL SURVEYS,

TO DETERMINE THE EXTENT OF PUBLIC SCHOOL USE OF PROGRAMED INSTRUCTION, EDUCATIONAL RESEARCH SERVICE CONDUCTED A QUESTIONNAIRE SURVEY OF 126 SCHOOL SYSTEMS IN 44 STATES. IN 1960-61, THE FIRST YEAR OF REPORTED USE, 12 SCHOOL SYSTEMS WERE USING PROGRAMED INSTRUCTION. BY 1964-65 THIS USE HAD INCREASED EIGHT TIMES AND USE BY STUDENTS 20 TIMES. MATHEMATICS AND ENGLISH REMAINED THE MOST POPULAR SUBJECTS FOR PROGRAMED INSTRUCTION, MAKING UP 80.4 PERCENT OF THE 378 APPLICATIONS REPORTED. GRADE PLACEMENT OF APPLICATIONS RANGED FROM KINDERGARTEN TO GRADE 12, WITH APPROXIMATELY TWO-THIRDS OF THE APPLICATIONS A PART OF REGULAR COURSE WORK AND ONE-THIRD, REMEDIAL OR ENRICHMENT. OTHER USES REPORTED WERE--IN SUMMER SCHOOL SESSION, WITH THE PHYSICALLY HANDICAPPED AND HOMEBOUND STUDENTS, IN ADULT EDUCATION, IN JUNIOR COLLEGES, AND IN TEACHER ORIENTATION AND INSERVICE TEACHING. ELAPSED TIME OF PROGRAMS VARIED FROM ONE WEEK TO ONE YEAR. ONLY 23 OF THE SYSTEMS IN THE SURVEY REPORTED ANY USE OF TEACHING MACHINES. SUMMARIES OF USE, SPECIFYING GRADE LEVELS, SUBJECTS, NUMBER OF STUDENTS IN THE PROGRAM SESSION, AND ELAPSED TIME OF EACH PROGRAM, ARE LISTED BY SCHOOL DISTRICTS. THIS REPORT WAS PUBLISHED IN "EDUCATIONAL RESEARCH SERVICE CIRCULAR," NO. 7, SEPTEMBER 1966 AND IS AVAILABLE FOR $1.75 FROM EDUCATIONAL RESEARCH SERVICE, 1201 SIXTEENTH ST., NW, WASHINGTON, D.C. 20036. (MF)

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circular

EDUCATIONAL RESEARCH SERVICE

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Circular No. 7, 1966 September 1966

ED 010 806

PROGRAMED INSTRUCTION IN LARGE SCHOOL SYSTEMS

Programed instruction and its accompanying hardware, the teaching machine, have been heralded as innovations that will revolutionize education, attacked as threats to the personal quality of the educational process, and branded as fads that will soon be replaced by something new. It now appears that none of these positions is well founded, and reports on programed instruction have taken on a more moderate tone.

To determine the extent of public school use of programed instruction, the Educational Research Service contacted 443 school systems with enrollments of 12,000 or more pupils, and asked the question, "Does your school system use programed instruction in any way?"

In September 1965, the questionnaire reproduced on pages 57 to 59 of this Circular was sent to the systems replying affirmatively to the inquiry mentioned above. From the returns, it has been possible to identify 126 school systems which have used programed instruction. The replies of these systems to the questionnaire survey are the basis of this Circular. The 126 school systems are located in 44 states spread across the country. They range in size from enrollments of fewer than 15,000 pupils to over 1 million. The 126 systems may be classified by enrollment as shown below:

Enrollment	Number of systems
100,000 and over	13
87,500 to 99,999	3
75,000 to 87,499	3
62,500 to 74,999	7
50,000 to 62,499	10
37,500 to 49,999	8
25,000 to 37,499	17
12,000 to 24,999	65

As may be seen from the questionnaire, the survey conducted by ERS was limited to items of a general nature, such as the years in which programed instruction was used, the number of students involved, the grade level, and the subject and topic of each program. Respondents were asked to estimate the average time needed to complete the program, to differentiate between programed texts and programs used with machines, to describe how the program was used in relation to the total offering in the subject, and to indicate the status of the program when it was used. An inquiry was also made with regard to the source of the program, and space was provided for an evaluation or other comments which the respondent might wish to make.

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With the exception of the final open-end item, each of the questions listed above is summarized in the following text. Special attention has been given to the early uses of programed instruction. Also to be found in the text are a summary of the response from 11 school systems which have used programed instruction in summer school, descriptions of some uses of programs which are outside the usual school use, and excerpts from letters from two respondents who describe in some detail their experiences with programed instruction.

The second part of the Circular, beginning on page 11, is a system-by-system description of the uses of programed instruction, summarized from the questionnaire responses. The enrollment figures for each school system are taken from data collected by the NEA Research Division during the school year 1965-66. Listed under each system are the programs reported and a brief description of their use. Included in parentheses with many of the descriptions are quotations taken from the "open-end" item on the survey form.

Early use of programed instruction. Although there are reports in the literature that teaching machines were being used in the public schools as early as 1959, the first year of use reported by any of the 126 school systems which responded to this questionnaire was the school year 1960-61. In that year, 12 school systems, or 9.5 percent of the systems covered by this Circular, were using at least one program, and 3,827 students were involved, overall.

The grades in which the 1960-61 programs were used ranged from 3 to 12. However, most of the programs were used at the secondary school level. Of the 17 applications of programed instruction in 1960-61, nine were in the mathematics field, seven in language arts or English, and one in science. One program took just one week to complete, nine programed instruction projects lasted the entire school year, and the others took intermediate periods of time. Most of the programs were used as a part of the regular course offering in the subject with which they dealt; a few were used for remedial or enrichment work. Twelve of the 17 applications of programs were tests in either informal or controlled experiments. With the exception of one program that had been produced by a university, all of the programs in use during the 1960-61 school year were from commercial sources.

What has happened to the 17 programed instruction projects begun in 1960-61? Two of the systems were using the same programs in 1965-66, and five more of these applications of programed instruction were used through 1964-65. Since data for 1965-66 were not reported by all of the systems, it is probable that some of these five projects were continued in 1965-66. Seven of the projects begun in 1960-61 were given only one year's trial, and the remaining three continued for an additional year or two.

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Only one of the 12 systems using programed instruction in 1960-61 gave up its experiments with this type of teaching after the first year. Some of the systems continued to use the program with which they began without broadening the application of this teaching method. In the main, however, the systems which "pioneered" in the use of programed instruction have added other programs to their curriculum--several of these systems reported five or more programs in use at the present time.

Growth in programed instruction. Table 1 gives a year-by-year analysis of the number of school systems from the group of 126 which reported using programed instruction and the number of students receiving programed instruction in each year. Some school systems reported data up to the end of 1964-65; however, a number of systems did not complete the questionnaire until well into the 1965-66 term, and included information for that year as well. The 1965-66 data have been omitted from this comparison table, since the figures may not be complete. The number of systems which reported programs in 1965-66 was 63, and 48,188 students were receiving programed instruction in these systems.

Table 1

Use of Programed Instruction in 126 School Systems, 1960 to 1965

Year	Number of systems	Ratio to previous year	Number of students	Ratio to previous year
1	2	3	4	5
1960-61	12	...	3,827	...
1961-62	32	2.7	15,039	3.9
1962-63	62	1.9	25,710	1.7
1963-64	89	1.4	59,839	2.3
1964-65	98	1.1	78,170	1.3

Table 1 shows the extent to which the use of programed instruction increased from 1960-61 to 1964-65. Among the 126 school systems in this survey, the number using programed instruction in 1964-65 was over eight times greater than it was in 1960-61, and twenty times as many students had a portion of their curriculum taught by this method.

At least four of the school systems covered in this Circular now have staff members whose primary responsibilities lie in the field of programed instruction. Garden City, Michigan, and New York City have Coordinators of Programed Instruction; Rochester, New York, has established a Programed Learning Office; and Denver, Colorado, has a Coordinator of Programed Learning Projects.

A large proportion of the systems covered in this Circular reported using more than one program. The number of programs reported is shown in Table 2.

Table 2

Number of Programs Used in 126 School Systems, 1960 to 1966

Number of programs reported	Number of systems	Percent of total systems
1	2	3
1	28	22.2%
2	32	25.4
3	18	14.3
4	16	12.7
5	25	19.8
6	3	2.4
Over 6	4	3.2

Several systems indicated on the questionnaire that a number of short programs had been used in specific situations, but did not report details separately for each program. These instances are included in the category "over 6" in Table 2.

Subjects taught by programed instruction. During the first year that programed instruction was used in the public schools, a large proportion of the available programs were concentrated in the field of mathematics, with a few in English and science. As Table 3 indicates, a wide variety of school subjects are now taught by programed instruction. Mathematics and English are still the most popular subjects; together they make up 80.4 percent of the 378 applications of programed instruction reported by the school systems represented in this Circular.

Among the programs used for arithmetic and language arts at the elementary level are short programs, taking the student three months or less to complete, and long programs, requiring a semester or a year. Short programs prevail in both science and social studies. The one foreign language program designed for the elementary level is a year in length.

In secondary school, most of the mathematics programs are at least one semester in length, as are the programs used in home economics, business, and foreign language. Shorter programs are more prevalent in science and social studies. Both short- and long-term programs find a use in secondary English.

The questionnaire provided two dimensions for reviewing the application of programed instruction. The term "use" was employed in the questionnaire to describe the function of the program in relation to the total offering: remedial work, enrichment, and regular course content. The term "status" referred to whether the program was being tested in an informal or controlled experiment, or whether it had been adopted as a part of the curriculum. "Use" and "status" of the 378 cases of programed instruction described in this Circular are shown in Table 4.

Table 3

Subjects Taught by Programed Instruction in 126 School Systems, 1960 to 1966

Subject	Number of projects reported each year						Total number of projects per subject
	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	
1	2	3	4	5	6	7	8
Mathematics	9	19	53	75	99	39	168
English	7	23	21	52	80	54	136
Social studies	..	1	9	11	26	11	30
Science	1	3	5	9	14	15	22
Foreign language	..	2	3	1	4	6	14
Home economics	..	..	..	..	3	..	3
Shop	..	1	2	2	1	1	2
Business	..	..	..	..	2	1	3
TOTAL	17	49	93	150	229	127	378

Table 4

Use and Status of Programed Instruction Projects in 126 School Systems, Arranged by Subject

Subject	Number and percent of projects used as:			Number and percent of projects used in:			Total projects per subject
	Remedial	Enrichment	Part of regular course	Informal experiment	Controlled experiment	Part of regular course	
1	2	3	4	5	6	7	8
Elementary							
Arithmetic	6 (17.6%)	21 (61.8%)	14 (41.2%)	23 (67.6%)	11 (32.4%)	19 (55.9%)	34
Language arts	10 (20.4%)	10 (20.4%)	34 (69.4%)	31 (63.3%)	10 (20.4%)	35 (71.4%)	49
Social studies	...	5 (29.4%)	13 (76.5%)	10 (58.8%)	6 (35.3%)	3 (17.6%)	17
Science	...	1 (33.3%)	2 (66.7%)	2 (66.7%)	1 (33.3%)	2 (66.7%)	3
Foreign language	...	...	1 (100.0%)	...	...	1 (100.0%)	1
Secondary							
Mathematics	32 (23.9%)	31 (23.1%)	85 (63.4%)	69 (51.5%)	40 (29.9%)	57 (42.5%)	134
English	42 (48.3%)	24 (27.6%)	48 (55.2%)	46 (52.9%)	18 (20.7%)	27 (31.0%)	87
Social studies	...	5 (38.5%)	9 (69.2%)	10 (76.9%)	4 (30.8%)	5 (38.5%)	13
Science	3 (15.8%)	2 (10.5%)	15 (78.9%)	13 (68.4%)	6 (31.6%)	12 (63.2%)	19
Foreign language	...	1 (7.7%)	6 (46.2%)	3 (23.1%)	4 (30.8%)	6 (46.2%)	13
Home economics	...	1 (33.3%)	3 (100.0%)	2 (66.7%)	...	3 (100.0%)	3
Shop	...	1 (50.0%)	2 (100.0%)	...	...	2 (100.0%)	2
Business	...	...	2 (66.7%)	...	...	3 (100.0%)	3
TOTAL	93 (24.6%)	102 (27.0%)	234 (61.9%)	210 (56.6%)	100 (26.9%)	175 (47.2%)	378

Since the patterns of both use and status differ between the elementary and the secondary levels, the subjects have been arranged by level in Table 4. We see that a number of programs were given more than one function by a particular school system. The status of many programed instruction projects also has changed; for example, 68.4 percent of the science projects at the secondary level have been informal experiments, and yet an overlapping 63.2 percent have been used as a part of the regular curriculum. It seems safe to assume that this situation reflects early testing of a program, resulting in the incorporation of the same program into the curriculum.

Grades in which programs are used. The 378 applications of programed instruction reported by the systems covered in this Circular range in grade placement from kindergarten to grade 12. Fifteen systems reported use of programs only in their elementary schools, 72 have used programed materials only at the secondary level, and 39 systems indicated that programs were used at both levels. Table 5, on the following page, shows the number of systems using programed instruction at each grade level, and the number of applications of programed instruction reported for each grade.

Use of teaching machines. The emergence of programed instruction was concurrent with the development of teaching machines, but it has been commonly accepted that programs used with machines are now surpassed in popularity by programed texts. Only 23 of the 126 systems which

Table 5

Grades in Which Programed Instruction Was Used in 126 School Systems

Grade	Number of systems	Percent of total systems	Number of programs	Percent of 378 programs
1	2	3	4	5
K	2	1.6%	2	0.5%
1	20	15.9	23	6.1
2	14	11.1	17	4.5
3	9	7.1	12	3.2
4	28	22.2	41	10.8
5	37	29.4	56	14.8
6	38	30.2	58	15.3
7	45	35.7	70	18.5
8	50	39.7	77	20.4
9	67	53.2	121	32.0
10	57	45.2	96	25.4
11	48	38.1	74	19.6
12	43	34.1	76	20.1

are included in this survey reported any use of teaching machines. The data summarized below indicates how these machines and programs were used as compared with the uses of programed texts. Not included in these data are several items submitted by respondents which some readers might not consider to be uses of programed learning. These included reading laboratories, language labs, and science experiments accompanied by films.

Number of programs used:	As texts	With machines
In 1960-61	10	5
1961-62	36	13
1962-63	81	18
1963-64	141	12
1964-65	204	22
1965-66	111	14
In applications which lasted:		
3 months or less	132	13
1 semester	62	15
1 year	143	17
In remedial work	81	16
For enrichment	91	15
In the regular course	123	38
In informal experiments	190	17
In controlled experiments	82	18
In the regular program	150	12

Length of programs. Programed texts and machine programs varied in length from those taking the average student only a few hours to complete to those requiring an entire year of school time. Length of program was analyzed with respect to grade level, subject, use, and status, and no significant differences were found. The number of projects reported as requiring the various time periods listed on the questionnaire are as follows:

Time period	Number of projects
1 week or less	20
2 to 4 weeks	54
1 to 3 months	71
1 semester	77
1 year	176

In some cases, the respondents checked more than one time interval; this time spread is in keeping with one of the principles of programed learning--that students proceed through the material at their own learning rate.

Source of programs. As was mentioned earlier, the programs in use in the first year covered in this study (1960-61), were, with one exception, from commercial sources. In later years, other sources began to develop programed materials, but the largest proportion of the programs in use continue to be obtained from commercial sources.

The questionnaire item dealing with the source of the program listed four possible sources, and provided space for writing in other information. Listed were teachers, system employees, universities, and commercial firms. A

Table 6

Source of Programs Used in 126 School Systems, Arranged by Status of Project

Source	Status of Project			Total
	Informal experiment	Controlled experiment	Regular program	
1	2	3	4	5
Teacher	10 (83.3%)	1 (8.3%)	5 (41.7%)	12
System employee	...	5 (100.0%)	4 (80.0%)	5
University	...	7 (87.5%)	1 (12.5%)	8
Commercial source	200 (57.6%)	82 (23.6%)	164 (47.3%)	347
Private agency	...	5 (83.3%)	1 (16.7%)	6
TOTAL	210 (55.5%)	100 (26.5%)	175 (46.3%)	378

few systems indicated that they had obtained material from other sources, mainly study groups or foundation-supported agencies.

Since some differences in status (use in informal experiments, controlled experiments, etc.) exist among programs from the various sources, further analysis is given in Table 6, which indicates the number of projects using programs from each of the sources mentioned, and the status of these projects.

Programs from sources other than commercial have been written in the following areas:

- Teacher-made programs: 3 in elementary arithmetic; 4 in secondary mathematics; 2 in secondary English; 1 in home economics.
- Programs written by system employees: 1 in elementary social studies; 1 in elementary science; 1 in elementary foreign language; 1 in secondary English; 1 in secondary social studies.
- University-programed materials: 1 in elementary arithmetic; 1 in elementary language arts; 2 in secondary mathematics; 1 in secondary social studies; 2 in secondary science; 1 in secondary foreign language.
- Private-agency programs: 5 in secondary mathematics; 1 in secondary English.

Use and status of programed instruction. Table 4, on page 5 of this Circular shows the uses to which programs have been put in the 126 systems covered by this survey, and the status of the programed instruction projects when they were in existence. Approximately two-thirds of the applications of programed instruction in these systems have been a part of the regular course work--yet remedial and enrichment applications, when combined, make up more than the remaining one third. This reflects the fact that a number of programs have been used in more than one way by the same school system. For example, a program in arithmetic may be used for enrichment at the fourth grade level, as part of the regular course work in sixth grade, and for remedial work in seventh grade.

A similar overlap of percentages is shown in the portion of Table 4 which reflects the status of the programed instruction projects. At the elementary level, 63.5 percent of the applications were as informal experiments, and 57.7 percent of the same programs were used as a part of the regular curriculum. In many cases the practice has been to test a program before incorporating it into the curriculum.

Summarized below are the percentages of the 378 applications of programed instruction for

remedial work, enrichment, and regular course work. Also shown are the percentages of the projects conducted as informal or controlled experiments, or incorporated into the regular course of study.

Percentage of projects used in:	Elementary level	Secondary level
Remedial work	15.4%	28.1%
Enrichment	35.6	23.7
Regular course work	61.5	62.0
Informal experiments	64.4	52.2
Controlled experiments	26.9	26.3
Regular curriculum	57.7	42.0

Use of programed instruction in summer school. As was mentioned earlier in this Circular, programed instruction was reported used in summer school sessions by 11 of the 126 systems which responded to the questionnaire. With the exception of one study skills program used at the sixth grade level, all of the summer school use was concentrated at the junior or senior high school level. Three systems reported programs in the English area used in summer school--one for remedial use in reading in grade 7, 8, and 9, and two for remediation in grammar, one at the junior high school level and the other in senior high.

The remaining applications of programed instruction in summer school were in mathematics. Subjects such as algebra, plane and solid geometry, and basic mathematics have all been taught by programs in the summer, usually for remedial work, but in some instances for enrichment as well. All programs used in summer school were from commercial sources and all were in programed textbook form.

Unusual uses of programed instruction. Several of the systems which responded to the questionnaire have used programed instruction outside of the regular K-12 curriculum. For example, two systems used programs and machines with physically handicapped students, and several systems mentioned using programs for the education of homebound students. In addition, programs were used in adult education, in junior colleges, and in teacher orientation and inservice training. The latter uses are summarized below:

- Adult education. One system reports favorable results using programed algebra and plane geometry texts in adult education, and intends to expand this program. A second system has used programs with teaching machines in such areas as computer mathematics, electronics, slide rule, algebra, trigonometry, map reading, English, grammar, and business letters.
- Junior college. In one system, programed algebra was at first used experimentally at the junior college level. This use of programed instruction proved so successful that at present all junior college algebra in this system is program-taught. In a second case, a one-year technical institute was offered at the junior college level in computer programming. The program was used with a machine, and was from a commercial source. The application was at first a controlled experiment; results warranted its inclusion as a regular part of the junior college curriculum.
- Teachers. Inservice training in the "new math" was offered to elementary teachers in one system. In another, a system employee wrote a program dealing with procedures for ordering audiovisual materials. This program is used to orient new teachers and is considered very successful.

Comments by two respondents. Several of the individuals who completed the questionnaire

supplemented their replies with letters describing their experiences with programed materials. Quotations from two of these letters are included here. The first letter quoted is from a junior high school principal in Illinois, who has supervised the use of a number of mathematics programs in his school.

> During the past five years the system has tried almost all of the mathematics programming that one commercial firm has to offer for junior high school students. There were varying numbers of students involved for varying periods of time.
>
> Today the program has been evolved to a point where it is used mainly in the Honors classes and ninth-grade general math classes. The biggest problem with programed mathematics is that almost all of it is traditional, which is out of step with the modern math being taught in the other classrooms. In the Honors classes the students do seventh grade mathematics in a few months and then are free to do the eighth-grade material. When they have moved to Honors eighth grade, the students are given algebra in the only modern mathematics program we have found. In addition, the students do short programed courses in other math topics.
>
> The greatest success with programed mathematics has been in the ninth grade. About 60 percent of the 700 ninth-graders elect algebra and are given the subject in a teacher-taught classroom. All other ninth-graders are started in a programed algebra course while in ninth-grade general mathematics. Those who are hopelessly frustrated are changed to programed learning materials in general math. Many others continue in algebra but never complete enough to secure algebra credit, so they are given credit for general math. A small percentage complete the algebra materials and are given algebra credit. An even smaller number develop into exceptionally good math students.
>
> The reason the program approach is so desirable is that a student fearful of electing algebra may take a safe try at it. Each year several students become quite adept in algebra, which is something no one would have guessed from their past records. The use of programs has permitted students to at least explore a new math world and to do it without fear of failure. Because of the feeling that a junior high school should devote itself to creating an atmosphere where students do a tremendous amount of exploring--as opposed to specializing--the programed learning approach in ninth grade makes us feel we are doing what we should for students, at least in the area of mathematics.

The second letter which is quoted here is from the Coordinator of Programed Instruction in a Michigan school system.

> The research project in programed instruction has involved to date a total of 1800 students in grades 4 through 12. The programs used are from commercial sources and include every subject area in the curriculum, as well as some topics not previously offered, such as advanced chemistry and physics, calculus, and German. Programed texts have been used, along with two simple machines.
>
> The project has reached students operating from one to six years below grade level, who receive reinforcement in their areas of deficiency, as well as students receiving advanced work for enrichment beyond the existing curriculum. The project requires careful study of the students' school records, and conferences with counselors, teachers, and administrators, before the student is <u>invited</u> to participate. A personal interview with the Coordinator of Programed Instruction is also required. In 1964-65, two groups of students were added to the project: students with high academic ability who were given programed material for acceleration in all subject areas; and seniors analyzed by standardized achievement scores as deficient in basic skills, who were given programed materials in arithmetic and English grammar and usage. This group of 240 students were <u>not</u> volunteers.
>
> The project consists of a three track system for both reinforcement and enrichment. On Track One, the students work directly with the Coordinator of Programed Instruction in groups of 10 to 27. They receive programed instruction three times a week. Each group is made up of students from grades 10 to 12, each working on a different program. In any one group, one might find some students working on programs in reading comprehension skills, vocabulary development, drafting, calculus, biology, carburetor repair, American Government, etc. Students in this track may work on their programs at home if they wish.

On Track Two, the Coordinator supervises and gives inservice education to the classroom teacher who then uses various programs with students within her own class. After a study of achievement test scores and the teacher's lesson plans, programs are identified for individuals on the basis of their needs, interests, and abilities. These students work on their programs in class two or three days per week, and correlated creative activities are planned for the class the remaining two or three school days. These students may also take their programs home.

Track Three is similar to Track Two except that on this track the Coordinator goes into the classroom two or three days a week in a type of team teaching situation, and works with 15 or 16 students utilizing various programs, while the teacher works with the remaining 14 or 15 students on correlated activities. Students change from one group to another when appropriate.

In all three tracks, students receive no grades, credits, or awards for work in programed instruction. Their improved skills are evaluated or graded by regular classroom assignments. In 1964-65 the participating students each completed from three to 17 programs, varying in length from 40 to 4,000 frames, which took from one and one-half to several weeks in terms of student time to complete.

Attendance and behavior of students using programed materials have shown marked improvement, and no differences in attitude and achievement have been found between volunteers and the group of non-volunteer seniors. Self-concept has apparently improved in students who have had long-term failure patterns in school. There also has been a carry-over of improved attitude on the part of these students in classes where programed instruction is not used. Of the returned dropouts who did not receive programed instruction in 1963-64, 50 percent did not remain in school. All of those who had been given programed instruction returned in 1964-65 and again in 1965-66.

It is the purpose of this school system to continue to develop and refine the list of criteria for the selection and implementation of programed instruction; to evaluate the three tracks used; and to see if the extremely successful results of the first years of this project can stand up to the test of repeated use with various students in a variety of situations over a three and one-half year period.

The system-by-system listing. The balance of this Circular is devoted to summaries of the applications of programed instruction reported by the individual school systems. Prior to the completion of this report, each of the 126 respondents received a summary of his report for verification. In many cases, the summary includes the respondent's comments about the use of the program.

This study was designed and written by Mary D. Shipp, Professional Assistant, Educational Research Service

USE OF PROGRAMED INSTRUCTION IN 126 LOCAL SCHOOL SYSTEMS
(Figure in parentheses following the name of each school system is 1965-66 enrollment)

BIRMINGHAM, ALABAMA (City schools) (69,941)

Algebra	Grade 9, 150 students (1963-66). Programed text from a commercial source took students 1 year to complete; used as complete first year algebra course.
Algebra, geometry	(Grades 9, 10, and 11; 60 students (1963-65). Programed text from a commercial source used for remedial purposes. (Respondent reports, "Valuable for filling gaps and replacing deficiencies. Individual students needing remedial or supplementary assistance work with program material related to the topics with which they experience difficulty. This is done during study periods under supervision of the mathematics department head. Usually one to five students work independently in small study rooms for from 1 to 4 weeks, until mutual decision to discontinue work is made.")

* * *

JEFFERSON COUNTY, ALABAMA (Birmingham) (65,018)

French	Grades 9 through 12 (1961-66); 1,581 students in 1965-66. Program with machine using commercial and teacher-made materials is used throughout entire year as part of regular course.
Spanish	Grades 7 through 12 (1961-66); 1,393 students in 1965-66. See French, above.
German	Grades 10, 11, and 12 (1961-66); 140 students in 1965-66. See French, above.
Mathematics--polygons, circles, angles, arcs, exponents, logarithms, slide rule, quadratics	Grades 9 through 12; 653 students (1965-66). Programed text used with machine or alone, combining commercial and teacher-made materials. (Respondent reports, "Since material is graded, it is used for remedial work, enrichment, and as part of the regular course.")
Reading	Grade 7 through 12; 1,194 students (1965-66). Program with machine using commercial and teacher-made materials took students 1 year to complete; used for enrichment, remedial work, and as part of the regular course.

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ANCHORAGE, ALASKA (20,065)

Grammar	Grades 4, 5, and 6; 30 students (1960-61). Program with machine, from a commercial source, took students from 1 to 3 months to complete; used for remedial work in an informal experiment.
Grammar and usage	Grade 7; 110 students (1962-65). Programed text from a commercial source took students 1 semester to complete; used as part of the regular school program. (Respondent reports, "The program has been used with accelerated classes the past three years. It has come to be a part of our regular 7th- and 8th-grade curriculum.")
Algebra and geometry	Grade 10; 240 students (1963-66). Programed text from a commercial source took students 1 semester to complete; used as part of the regular school program.

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USE OF PROGRAMED INSTRUCTION (Continued)

SCOTTSDALE SCHOOL DISTRICT, ARIZONA (Phoenix) (24,532)

Research materials — Grades 4 through 8; 150 students (1960-65). Program with machine from a commercial source, used through the entire school year as a part of the regular school program.

Mathematics — Grades 7 and 8; 160 students (1961-65). Programed text from a commercial source took students 1 year to complete; used for enrichment in two schools as part of the regular course.

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TUCSON, ARIZONA (50,661)

Algebra — Grade 9; 173 students (1965-66). Programed text from a commercial source took students 1 year to complete; used as part of regular course in an informal experiment.

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BERKELEY, CALIFORNIA (15,711)

Arithmetic — Grades 9 through 12; 1,233 students (1963-65). Programed text from a commercial source took the most able students 1 semester to complete; the majority of students spent 2 semesters completing the material; used as the regular course. (Respondent reports, "Program used with slow learners from grades 9 through 12. All work is done in class; no homework is given. Program produces best results with 9th-grade students, as students in the higher grades show less interest and less drive. The program will continue on a permanent basis.")

Social studies--U. S. history and civics, world history — Grades 8 and 9; 178 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course with slow learners.

Chemistry and physics--significant figures, factors, velocity and acceleration, slide rule, exponential notation, molecular weights — Grades 11 and 12; 308 students (1964-66). Programed texts from a commercial source take students 1 week or less to complete; used for remedial and enrichment work in an informal experiment and as part of the regular school program.

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COVINA-VALLEY SCHOOL DISTRICT, CALIFORNIA (Covina) (17,948)

Algebra — Grade 9; 151 students (1962-63). Programed text from a commercial source took students 1 semester to complete; used as part of the regular course in a controlled experiment.

Arithmetic — Grades 4, 5, and 6; approximately 500 students (1963-66). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for remedial work and enrichment in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

COVINA-VALLEY SCHOOL DISTRICT, CALIFORNIA (Continued)

Spelling	Grade 3; 90 students (1964-66). Programed text from a university source took students from 2 to 4 weeks to complete; used as part of the regular school program.
Grammar	Grade 7; 330 students (1964-66). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work as part of the regular school program. (Respondent reports, "We systematically channel those students whom we feel can profit from a programed learning experience of a remedial nature through this course. Feedback has ranged from complete disgust to rapturous joy. Administrators and teachers feel that the limited application has been successful and we will continue this use of the program.")

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CUPERTINO, CALIFORNIA--Elementary School District (20,972)

Reading	Grades 1 and 2; 500 students (1962-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment and as part of the regular school program.
Arithmetic	Grade 7; 30 students (1963-64). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work as part of the regular school program.
Geography	Grades 3 through 6; 360 students (1964-66). Programed text developed within the district took students 1 year to complete; used as part of the regular course in a controlled experiment.
All subjects--English, mathematics, social studies, economics	Grades 2 through 8; 260 students (1964-66). Programed texts and programs with machines took students from 1 semester to 1 year to complete; used for enrichment work and as part of the regular school program for supplementary work for gifted students and as part of the "Expanded Learning Program."

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DOWNEY, CALIFORNIA (19,977)

Arithmetic--study skills	Grade 6; 67 students (1964-66). Program with machine, from a commercial source, took students from 2 to 4 weeks to complete; used as part of the regular course.
Grammar	Grade 8; 35 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used for enrichment as part of the regular school program.
Study skills	Grade 6; 140 students (summer 1965). Programed text from a commercial source took students 4 weeks to complete; used as part of the summer school program.

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USE OF PROGRAMED INSTRUCTION (Continued)

DOWNEY, CALIFORNIA (Continued)

Geography--topography — Grades 8 through 12; 18 students (1965-66). Teaching machine from a commercial source using materials programed by system's curriculum staff took students 1 semester to complete; used with hospitalized physically-handicapped students.

Reading — Grade 1; 64 students (1965-66). Program with teaching instruments, from a commercial source, took students 1 year to complete; used as part of the regular course in a controlled experiment.

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EAST WHITTIER ELEMENTARY SCHOOL DISTRICT, CALIFORNIA (Whittier) (13,996)

Reading--phonetic alphabet approach — Grade 1; 30 students (1964-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. (Respondent reports, "Program is being used with heterogeneously grouped class of 1st-graders. So far the program has been well received. If this proves to be a successful approach at the 1st-grade reading level, it will be used by other 1st-grade teachers in the same building.")

Reading — Grades 7 and 8; 400 students (1965-66). Programed texts from a commercial source took students 1 year to complete; used for remedial work in an informal experiment. (Respondent reports, "This reading improvement program has been set up to meet the needs of children of average ability who are reading two or more grade levels below grade placement.")

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GARDEN GROVE, CALIFORNIA (47,935)

Physical science — Grade 7; 1,250 students (1962-65). Programed material for the entire group used with overhead projector and student booklets. Program developed coordinately with an outside agency, took students 1 year to complete; used as part of the regular course in a controlled experiment.

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GLENDALE, CALIFORNIA (24,193)

Arithmetic — Grade 7; 240 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. (Respondent reports, "Program used with lowest 20 percent of student population. Conflicting evaluations were received from the five participating junior high schools. It had been hoped that the flexibility of programed learning materials in terms of varying backgrounds and learning rates would result in a successful experience. Positive results were received from schools which used the materials with those slow students who showed 'some promise.' Reading level of material was most often given as a reason for lack of success. Program will be generally discontinued in 1965-66 except in specific cases where success was indicated.")

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USE OF PROGRAMED INSTRUCTION (Continued)

LA MESA-SPRING VALLEY ELEMENTARY SCHOOL DISTRICT, CALIFORNIA (La Mesa) (13,696)

Modern algebra	Grade 8; 190 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment. (Respondent reports, "The formal evaluation of the experiment is still being completed. The response of students and teachers has been quite favorable and the program will be used in a number of classrooms in 1965-66, usually with accelerated students.")
Audiovisual ordering procedures	Used with 180 teachers in 1964-66. Program produced by an employee of the school system took teachers less than 1 week to complete; used as an introduction to ordering procedures for teachers new to the system. (Respondent reports, "Program appears to have produced a more consistent ordering behavior in teachers.")
Science	50 students (1964-65). Programed texts from a commercial source took students from 2 to 4 weeks to complete; used for enrichment as part of the regular school program.

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LOS ANGELES, CALIFORNIA (620,272)

Language arts	Grade 5; 35 students (1961-62). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as enrichment in an informal experiment.
Grammar	Grades 9 and 10; 300 students (1961-62). Programed text from a commercial source took students 1 year to complete; program used as part of regular course in an informal experiment.
Arithmetic-decimals	Grade 6; 216 students (1962-63). Program with machine, from a commercial source took students from 1 to 3 months to complete; used as enrichment and as part of the regular program, in an informal experiment.
Geography--maps	Grades 5 and 6; 15 students (1963-64). Programed text from a commercial source took students from 2 to 4 weeks to complete; program used as part of the regular course in an informal experiment.
Science--solar system	Grades 5 and 6; 15 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; program used for enrichment as part of regular course in an experiment, and as part of regular school program.
Language--punctuation, capitalization, verbs, and pronouns	Grades 5 and 6; 15 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; program used as part of regular course in an informal experiment and as part of regular school program.
Mathematics	Grade 7; 35 students (1964-65). Programed text from a commercial source took students 1 semester to complete; program used as part of regular course and as make-up work for absentees, in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

LOS ANGELES, CALIFORNIA (Continued)

Reading	Grades 7, 8, and 9; 200 students (1964-65; summer 1964; summer 1965). Programed texts from a commercial source took students 1 year to complete; program used for remedial work in an informal experiment.
Algebra	Grade 9; 30 students (1964-65). Programed text from a commercial source took students 1 semester to complete; program used as part of regular course in an informal experment.

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OAKLAND, CALIFORNIA (64,218)

Arithmetic	Grade 9 (1962-65). Programed text from a commercial source took students 1 year to complete; used for remedial work with lower quarter of ninth grade.
Reading	Grades 1 and 2 (1964-66). Programed text from a commercial source; students involved in two-year program; materials used as part of an experiment conducted in cooperation with a university.

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SACRAMENTO, CALIFORNIA (50,947)

Arithmetic--introduction to modern mathematics	Grades 5 and 6; 424 students (1963-65). Program with machine, from a commercial source, used two different ways in two years. In 1963-64, 5th- and 6th-grade students used the programs for enrichment in a controlled experiment. In 1964-65 the programs and machines were used with 5th-graders in an informal experiment. (Respondent reports, "Machines and programs were sent to various schools at the request of instructional personnel for a six-week period. We believe the six-week period to be too short a time unit and are scheduling the machines and programs for eight-week periods during the 1965-66 school term.")
Arithmetic--multiplication and division	Grades 4, 5, and 6; 840 students (1963-65). Program with machine, from a commercial source, used for remedial work and as part of regular course, in same manner as above.
Arithmetic--decimals	Grades 5 and 6; 293 students (1963-65). Program with machine, from a commercial source, used as part of regular course in same manner as above.

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SAN DIEGO, CALIFORNIA (118,541)

Chemistry--use of slide rules and exponents	Grades 11 and 12; 160 students in 1960, expanded to 500 students by 1965. Programed text from a commercial source took students 1 week to complete; used as part of regular school program. (Respondent reports, "Used on individual basis, largely outside of regular class time. Plan to continue on regular basis.")

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USE OF PROGRAMED INSTRUCTION (Continued)

SAN DIEGO, CALIFORNIA
(Continued)

Arithmetic--numeration and geometry	Grades 4, 5, and 6; 120 students (1962-63). Programed text from a commercial source took students from 1 to 3 months to complete; used as enrichment in an informal experiment. (Respondent reports, "The material was 'modern' in terminology and was of assistance in preparing for the modern textbooks which have been adopted.")
Arithmetic--sets	Grades 4 and 5; 120 students (1963-64). Programed text from a commercial source took students from 1 to 3 months to complete; used as enrichment in an informal experiment. (See respondent's comments in item above.)
Reading	Grades 2 and 3; 18 students (1964-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial purposes in an informal experiment. (Respondent reports, "The programed basic reading material was highly motivating to the pupils.... The teacher needs to supervise closely.")
English--literature	Grade 10; 1,259 students (1964-66). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of regular school program.
English--composition	Grade 8; 8,000 students (1965-66). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular school program.

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SAN JOSE, CALIFORNIA (31,295)

Algebra	Grades 8 through 12; 2,120 students (1962-66; summers 1962, 1963). Programed texts and programs with machine took students 1 year or summer session to complete; used as pilot work, part of the regular course in pilot experiments, controlled experiments, and informal experiments.
Arithmetic	Grades 8 and 9; 250 students (1963-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for enrichment and as part of the regular course in an informal experiment.
Basic mathematics	Grades 10, 11, and 12; 32 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used for remedial work, enrichment, and as part of the regular course, in an informal experiment.
American government--constitution	Grade 12; 22 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of the regular course in a controlled experiment.
Grammar	Grade 9; 28 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of the regular course in an informal experiment. (Respondent reports, "Program proved to be very satisfactory with better than average students, but less so with slower students. We will continue to use this program, but we plan to move it up in grade level.")

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USE OF PROGRAMED INSTRUCTION (Continued)

WEST COVINA, CALIFORNIA (14,194)

Spanish — Grades 6 and 7; 2,000 students (1965-66). Programed texts, tapes, and records, from a commercial source, took students 1 year to complete; used as part of regular school program.

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ADAMS-ARAPAHOE JOINT SCHOOL DISTRICT, COLORADO (Aurora) (16,773)

Reading — Grade 1; 118 students (1963-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. (Respondent reports, "The programed reading course was used the first year in one 1st-grade class with low student turnover. Considerable ingenuity was needed by a very good teacher to maintain motivation among the least mature part of the class. However, by well into the second semester, these children were progressing reasonably well. The more mature made much progress from the start. This year we have used three classes whose turnover rate should be more normal for the district--about 30 percent. We will also follow the reading habits of last year's children who remain in our schools. We have not continued the programed reading course in second grade for these children.")

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COLORADO SPRINGS, COLORADO (27,235)

Grammar — Grade 11; 53 students (1963-64). Programed text from a commercial source took students 1 year to complete; used for remedial work in an informal experiment. (Respondent reports, "Program was used with classes of below average ability. Test scores and student compositions indicated some improvement in the mechanics of writing. Regular use tended to become monotonous and resulted in student boredom. Using the program on an irregular basis and for shorter periods of time with more help from the teacher overcame this problem.")

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DENVER, COLORADO (104,000)

Spanish — Grade 6; 15,000 students (1961-65). Programed text produced by an employee of the system. In 1961-62 a controlled experiment contrasted programed materials with teacher-directed activities; teacher-directed activities were found to be superior. (Respondent reports, "In 1962-63 a controlled experiment tested various combinations; results strongly in favor of spending half the classroom period on programed materials and the other half on teacher-directed activities.")

Grammar — Grades 9 to 12; 2,850 students (1961-65). Programed materials produced by an employee of the system are assigned as remedial work to an individual student when needed. (Respondent reports, "Attitudes of teachers and students toward the materials vary from one extreme to the other.")

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USE OF PROGRAMED INSTRUCTION (Continued)

DENVER, COLORADO (Continued)

Social Studies--United States Constitution	Grade 8; 1,500 students (1963-65). Programed text produced by an employee of the system takes students from 2 to 4 weeks to complete; used in a controlled experiment in 1963-64; now used as part of regular course. (Respondent reports, "From 1964 to the present, teachers have used the program voluntarily to provide background information to their students.")
Reading	Grades 1 and 2; 675 students (1964-66). Programed text from a commercial source took students 1 year to complete; used as part of regular course in a controlled experiment. (Respondent reports, "Successful results were obtained in 1964-65, so the program was extended into second grade. If results are still good, the program will go into third grade in 1966-67.")

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JEFFERSON COUNTY SCHOOL DISTRICT R-1, COLORADO (Lakewood) (56,641)

Calculus	Grade 12; 36 students (1962-65). Programed text from a commercial source took students 1 year to complete; used for enrichment as part of regular school program. (Respondent reports, "Students are selected for the course from applications. Teacher is involved in instruction each class period. This has raised questions about the feasibility of using programed materials.")
English usage	Grades 10, 11, and 12; 85 students (1963-65). Programed text from a commercial source took students 1 to 3 months to complete; used for remedial work and as part of regular course, in regular school program. (Respondent reports, "Programed texts in English were found to be effective if used in conjunction with other materials. Could not be used consistently for remedial students.")

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PUEBLO, COLORADO (26,148)

Algebra	Grades 9 and 10; 140 student (1962-63). Programed text and program with machine, from a private agency, took students 1 year to complete. Used as part of regular course in a controlled experiment.
Arithmetic--modern mathematics	Grades 4, 5, and 6; 4,000 students (1963-66). Programed text from a commercial source took students 1 year to complete; used for enrichment in an informal experiment. (Respondent reports, "Effective as a transition from traditional to contemporary mathematics.")
Grammar	Grade 9; 70 students (1963-64). Programed text from a commercial source took students 1 to 3 months to complete; used for enrichment in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

WEST HARTFORD, CONNECTICUT (12,750)

Basic mathematics	Grade 9; 60 students (1963-64). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment.
Social studies--maps	Grades 5 and 6; 131 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of the regular school program.
Geometry	Grade 10; 25 students (1965-66). Programed text from a commercial source took students 1 year to complete; used in an informal experiment.
Science	Grade 8; 10 students (1965-66). Program with machine, from a commercial source, took students 1 semester to complete; used for remedial work in a controlled experiment. (Respondent reports, "Used with individuals of varying ability as a supplement.")
Grammar	Grades 7, 8, and 9; 22 students (1965-66). Programed text from a commercial source took students 1 semester to complete; used for remedial work in an informal experiment.

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WASHINGTON, D. C. (132,567)

Reading--remedial	Grade 8; 12 students (1963-64) Programed text from a private agency took students 1 year to complete; used for remedial work as part of regular school program. (Respondent reports: "Excellent for providing basic phonic skills, inadequate as a complete reading program. Very good for adolescents who need immediate help in overcoming reading difficulties.")
Reading--word attack, comprehension	Grades kindergarten to 6; 860 students (1964-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial and enrichment purposes in an informal experiment. (Respondent reports, "Highly effective. Used to supplement regular reading program.")
English--composition	Grade 7; 22 students (1965-66). Programed text from a commercial source took students 1 semester to complete; used as part of regular school program.
Algebra	Grade 10; 35 students (1965-66). Programed text from commercial source took students 1 year to complete; used as part of regular school program. (Respondent reports, "Teacher recommends periodic classroom discussions as change of pace. Material helpful for make-up work due to absence.")
Grammar	Grade 11; 28 pupils (1965-66). Programed text from a commercial source took students 1 semester to complete; used as part of regular school program.

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USE OF PROGRAMED INSTRUCTION (Continued)

DADE COUNTY, FLORIDA (Miami) (202,124)

Algebra	Grades 10, 11, and 12; 90 students (1962-63). Programed text from a university source took students 1 year to complete; used as part of regular course in controlled experiment. (Respondent reports, "Students using programed texts performed better on tests than control group. The students, who were below average academically, disliked the personal responsibility placed on them.")
Plane geometry	Grade 9; 6 students (1963-64). Programed text from a commercial source took students 1 year to complete; used as part of regular program to accelerate small group of gifted students.
Chemistry--measurements, molar concept	Grade 11; 600 students (1963-66). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular school program.
Grammar and usage	Grades 9 to 12; 300 students (1964-65). Programed text from a commercial source took students from 1 semester to 1 year to complete; used for remedial work and enrichment, in an informal experiment.
General science--forces	Grade 7; 270 students (1965-66). Programed text from a university source took students from 1 to 3 months to complete; used as part of regular course in a controlled experiment.

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ORANGE COUNTY, FLORIDA (Orlando) (69,032)

Geography--map skills	Grade 7; 62 students (1965-66). Programed text from a commercial source took students 9 weeks to complete; used as part of regular course in an informal experiment. (Respondent reports, "Used with average and slightly below average classes; program was very well received; students did well, and achievement was raised as measured by teacher-made tests.")

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PALM BEACH COUNTY, FLORIDA (West Palm Beach) (56,624)

Grammar	Grades 7 and 9, (1965-66). Programed text from a commercial source is being used with two groups of average 7th-graders, and with lower ability 9th-graders; used for remedial work and as part of the regular course in a controlled experiment.

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SARASOTA COUNTY, FLORIDA (Sarasota) (15,795)

Algebra	Grades 8 and 9; 5 students (1961-62). Program with machine, from a commercial source, took students 1 year to complete; used for acceleration in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

SARASOTA COUNTY, FLORIDA (Continued)

Mathematics--sets, number systems	Grade 8; 60 students (1962-63). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for enrichment in an informal experiment. (Respondent reports, "Low ability students did extremely well, some for the first time. Other teachers in the department use the units as enrichment from time to time.")
All subjects	Grades 7, 8, and 9; 700 to 800 students (1962-63). Teacher-made programed texts took students 1 week to complete; used for enrichment in an informal experiment. (Respondent reports, "Each teacher wrote a short program in his subject and tried it out on his students. Some teachers still use these.")
Grammar	Grade 8; 100 to 150 students (1965-66). Programed text from a commercial source took students 1 semester to complete; used for remedial work, acceleration, and as part of the regular course in an informal experiment.

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VOLUSIA COUNTY, FLORIDA (DeLand) (30,550)

Algebra	Grade 9; 60 students (1961-63). Program with machine, from a commercial source, took students 1 year to complete; used as the total algebra course in an informal experiment.

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MUSCOGEE COUNTY, GEORGIA (Columbus) (42,512)

Calculus	Grade 12; 18 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of the regular course in an informal experiment.
Algebra	Grades 9 and 10; 300 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of regular course in an informal experiment.
Science--chemistry and astronomy	Grade 9; 120 students (1964-65). Programed texts from a commercial source took students from 2 to 4 weeks to complete; used for enrichment as part of the regular school program.

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CHICAGO, ILLINOIS (561,382)

Arithmetic--multiplication and division	Grade 4; 152 students (1961-63). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of regular course in controlled experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

CHICAGO, ILLINOIS (Continued)

Algebra	Grade 9; 669 students (1961-63). Programed text and program with machine, both from a commercial source, took students 1 semester to complete; used as part of regular course in a controlled experiment. (Respondent reports, "Programed instruction and conventional instruction apparently worked as well for students with IQ's below the median, whereas conventional instruction achieved greater success with students above the median IQ level.")
Electricity	Grade 9; 83 students (1961-63). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular course in a controlled experiment.
Spelling	Grade 9; 185 students (1961-63). Program with machine, from a commercial source, took students from 1 to 3 months to complete; used as part of regular course in a controlled experiment.
Spelling	Grade 5; 66 students (1962-63). Program with machine, from a commercial source, took students from 1 to 3 months to complete; used as part of regular course in a controlled experiment. (Respondent reports, "Lower ability teaching machine students did somewhat better when compared with control students than higher ability students did. Lower ability students did not tend to learn significantly more, however, when compared with higher ability students.")

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GRANITE CITY, ILLINOIS (13,550)

Reading	Grades 7 and 8; 70 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used for remedial work in an informal experiment. (Respondent reports, "Program used with accelerated classes to correct obvious deficiency--succeeded in raising reading achievement to the same high level as in other areas. We will continue to use the material where the deficiency is apparent in any class.")
Reading	Grades 1 and 2; 15 students (1964-66). Programed text from a commercial source took students 1 year to complete; used for enrichment as part of the regular school program. (Respondent reports, "Program used with gifted students in heterogeneous classrooms.")
Reading	Grade 2; 20 students (1965-66). Programed text from a commercial source used for remedial work in a group of students where reading is taught on levels.

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EVANSVILLE-VANDERBURGH SCHOOL CORPORATION, INDIANA (Evansville) (35,796)

Social studies--latitude and longitude	Grades 5 and 6; 90 students (1963-64). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for enrichment in an informal experiment. (Respondent

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USE OF PROGRAMED INSTRUCTION (Continued)

EVANSVILLE-VANDERBURGH SCHOOL CORPORATION, INDIANA (Continued)

Social studies--latitude and longitude (Continued)	reports, "Although there was some evidence of value in the area of providing for individual differences, there was no conclusive evidence showing that this method would be superior to traditional methods. Program discontinued at the close of the 1963-1964 school year.")
Algebra	Grade 9; 120 students (1963-65). Programed text from a commercial source took students 1 year to complete; used as part of regular course in an informal experiment.

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GARY, INDIANA (48,675)

Molar chemistry	Grade 10; 120 students (1962-63). Programed text from a commercial source took students 1 week to complete; used as part of regular course. (Respondent reports, "This material was used to supplement and enrich understanding of this topic. The teacher believed the program was well designed and achieved the purpose for which it was used.")
Reading	Grade 1; 150 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment.
Reading and literature	Grades 7, 8, 10, and 11; 800 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of regular course in an informal experiment. (Respondent reports, "Favorable teacher and pupil reactions. Materials have been added to supplementary list.")
Home economics--nutrition	Grade 9; 75 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of regular course in an informal experiment. (Respondent reports, "We received reasonably good results from this program in meeting a specific need. Programed materials centering on a specific topic seem more successful than total programs.")
Geometry	Grade 10; 10 students (summer 1965). Programed text from a commercial source took students 1 to 3 months to complete; used for remedial work in summer school.

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WATERLOO, IOWA (19,157)

Geography--air and sun relationships	Grade 6; 60 students (1962-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of the regular course in an informal experiment.
Algebra	Grades 9 and 10; 29 students (1964-66). Programed text from a commercial source took students 1 semester to complete; used in the adult high school as part of the regular program.

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USE OF PROGRAMED INSTRUCTION (Continued)

WATERLOO, IOWA (Continued)

Basic mathematics	Grades 9 and 10; 6 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of the regular course in an informal experiment. (Respondent reports, "This program has been used with students who had difficulty in mathematics and needed additional study in general arithmetic. The students enjoyed the course and their progress was very good.")
Geometry	Grades 10 and 11; 10 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used in adult high school as part of the regular program.
Numbers and numerations	100 students (1965-66). Programed text from a commercial source took students 1 year to complete; used in an informal experiment. (Respondent reports, "This is a new program which is only in its experimental stage and is in mimeographed form. The program has been used with students who find mathematics difficult because of both reading handicap and understanding of the fundamental processes. Success with the program to date is very good.")

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SHAWNEE MISSION, KANSAS--
High School District (15,300)

Algebra	Grade 9; 66 students (1961-63). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. (Respondent reports, "Program used for 1½ years. Teacher used programed materials in one section and regular materials in other sections. No particular difference in average mastery, more time-consuming to teacher. Experiment was terminated in the middle of the second year.")

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WICHITA, KANSAS (69,774)

English--dictionary skills	Grade 4; 1,400 students (1962-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of regular school program. (Respondent reports, "Approximately 30 out of 90 elementary schools have been checking out sets of the program from the Instructional Materials Center. Many schools have purchased their own sets, but this office has no record of usage of purchased materials. The records of the Instructional Materials Center indicate that schools using this program have continued to re-check the program the following year. The overall use of programs is increasing . . . as yet there has been no formal incorporation of programed materials into the curriculum.")
Social studies--maps	Grade 6; 1,400 students (1962-65). See comments on dictionary skills program above.
Social studies--latitude and longitude	Grade 6; 12,200 students (1962-65). See comments on dictionary skills program above.

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USE OF PROGRAMED INSTRUCTION (Continued)

WICHITA, KANSAS (Continued)

Mathematics-binomial arithmetic	Grade 7; 450 students (1962-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as enrichment in an informal experiment. (Respondent reports, "The binomial arithmetic programed unit has been used as an enrichment unit for faster students in the regular 7th-grade classes.")
Grammar	Grade 10; 925 students (1962-65). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular school program. (Respondent reports, "The sets are used primarily with the low average student at the 10th-grade level.")

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FAYETTE COUNTY, KENTUCKY (Lexington) (21,213)

Reading	Grades 7, 8, and 9; 2,422 students (1960-66). Programed text and program with machine, from a commercial source, took students approximately 1 semester to complete; used for remedial work and enrichment in an informal experiment and as part of the regular school program.
Grammar	Grades 7 through 11; 2,100 students (1962-64). Programed text from a commercial source took students 1 year to complete; used for enrichment in an informal experiment.
Spanish and French	Grades 10, 11, and 12; 235 students (1964-65). Programs with machine, from a commercial source, took students 1 year to complete; used as part of the regular course in an informal experiment.
Home economics--food and clothing	Grades 10, 11, and 12; 300 students (1964-65). Teacher-made programed materials took students 1 year to complete; used as part of the regular course in an informal experiment.
Reading--speed and comprehension	Grades 10, 11, and 12; 600 students (1964-65). Programed texts and program with machine, from a commercial source, took students 1 year to complete; used for enrichment in a controlled experiment and as part of the regular school program.

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LOUISVILLE, KENTUCKY (City schools) (50,107)

English	Grade 11; 120 students (1962-65). Teacher-made programed text took students from 1 to 3 months to complete; used for remedial work, enrichment, and as part of regular course, in an informal experiment.

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CADDO PARISH, LOUISIANA (Shreveport) (55,107)

Geometry	240 students (1962-65). Programed text from a commercial source took students from 1 to 2 months to complete; used for remedial work as part of regular school program. (Respondent reports, "Still using in remedial manner after screening from regular geometry classes after first six-weeks period.")

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USE OF PROGRAMED INSTRUCTION (Continued)

CADDO PARISH, LOUISIANA (Continued)

Algebra	45 students (1962-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work in an informal experiment.
English	Grade 10; 550 students (1963-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work as part of regular school program.
Calculus	Grade 12; 250 students (1963-65). Programed text from a commercial source took students 1 semester to complete; used as part of regular school program.

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PORTLAND, MAINE (13,784)

Mathematics	Grade 7; 4 students (1964-65). Teacher-made programed text took students from 1 to 3 months to complete; used for remedial work in an informal experiment.
Algebra	Grade 8; 26 students (1964-65). Teacher-made programed text took students 1 year to complete; used for enrichment with an accelerated group.

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ALLEGANY COUNTY, MARYLAND (Cumberland) (16,535)

Algebra	Grade 9; 64 students (1962-64). Programed text from a commercial source took students 1 year to complete; used for remedial work in an informal experiment. (Respondent reports, "Used for remedial work with regular class. Basically, the program was used throughout the school term at various intervals as individual students needed remedial work.")
English	Grades 11 and 12; 100 students (1963-64). Programed text from a commercial source used by students throughout year when remedial work was needed.
Algebra	Grade 10; 60 students (1964-65). Programed text from a commercial source used by students throughout year when remedial work was needed.
Trigonometry	Grade 12; 3 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as the regular course. (Respondent reports, "This subject was not offered as part of the regular program in this small high school, but was requested by these pupils. The teacher met with them before the regular school day. The program was well accepted by all concerned, and the students did well.")

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USE OF PROGRAMED INSTRUCTION (Continued)

BALTIMORE, MARYLAND
(City schools) (191,086)

Algebra	Grade 9; 165 students (1961-63). Programed text from a commercial source took students 1 year to complete; used as part of regular course in a controlled experiment. (Respondent reports, "Programed text is now used as a supplement.")
Algebra	Grade 9; 40 students (summer 1962). Programed text from a commercial source took students 6 weeks to complete; used for remedial work in an informal experiment. (Respondent reports, "Student reaction was highly favorable.")
Algebra and geometry	Adult education; 130 students (1962-65). Programed text from a commercial source took students 1 year to complete; used as part of regular program. (Respondent reports, "Program is continuing on an expanded basis. Program has been successful and student reaction has been favorable.")
Grammar and usage	Grades 7, 8, and 9; 260 students (1962-66). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular course in an informal experiment. (Respondent reports, "Pupils have enjoyed moderate success. Teachers have not accepted the program with enthusiasm. Pupil reaction has been one of passive acceptance. Program continuing on a slightly expanded basis.")
Geometry	Grade 10; 180 students (1965-66). Programed text from a commercial source took students 1 year to complete; used as part of regular course in a controlled experiment. (Respondent reports, "Pupils have been successful. Teacher and pupil reaction has been favorable. Program is continuing on an expanded basis.")

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BALTIMORE COUNTY, MARYLAND
(Towson) (109,078)

Arithmetic--percent	Grade 7; 146 students (1963-64). Teacher-made programed text took students from 10 to 14 weeks to complete; used as part of regular course in controlled experiment.
Reading	Grades 1 and 2; 210 students (1964-66). Programed text from a commercial source took students 1 year to complete; used for remedial work and enrichment in an informal experiment.
Arithmetic	Grades 4, 5, and 6; 450 students (1964-66). Programed text from a commercial source took students 1 semester to complete; used for enrichment as part of regular school program.

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HARFORD COUNTY, MARYLAND
(Bel Air) (21,623)

Arithmetic--sets, geometry, and numeration	Grades 4, 5, and 6; 555 students (1963-65). Programed text from a commercial source took students 1 semester to complete; used for enrichment as part of the regular school program.

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USE OF PROGRAMED INSTRUCTION (Continued)

HARFORD COUNTY, MARYLAND (Continued)

Algebra	Grades 9, 10, and 11; 216 students (1963-66). Programed text from a commercial source took students 1 year to complete; used for remedial work as part of the regular school program. (Respondent reports, "This program is used with selected pupils who need help in the regular program. It has also been used in summer remedial classes.")
Advanced mathematics	Grade 12; 38 students (1964-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course.
Mathematics--bases, numerals, points, lines, number sentences, modern systems	Grade 8; 103 students (1965-66). Programed text from a commercial source took students 1 semester to complete; used for enrichment as part of the regular school program.
English	Grade 8; 6 students (1965-66). Programed text from a commercial source took students 1 semester to complete; used as part of the regular course.

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MONTGOMERY COUNTY, MARYLAND (Rockville) (106,177)

Plane geometry	Grades 10, 11, and 12; 200 students (1960-61). Programed text from a commercial source took students one year to complete; used as part of regular course in a controlled experiment.
Advanced algebra	Grade 12; 30 students (1960-61). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for enrichment in a controlled experiment. (Respondent reports, "One-half of group was required to complete each frame--others could do work mentally. Second group enjoyed program more and achieved as well as first group.")
Geometry	Grades 10 and 11; 1,210 students (1963-66). Programed text from a commercial source took students 1 year to complete; used as part of regular course in a controlled experiment.
Reading	Grades 1, 2, and 3; 75 students (1963-65). Programed text from a commercial source took students 1 semester to complete; used in place of traditional reading program in a controlled experiment. (Respondent reports, "Program was used with one 1st-grade group of average or higher IQ who had no reading instruction. For comparison it was also used with a group of 2nd-graders from deprived backgrounds who had not learned to read in Grade 1. Both groups and a third control group were tested. The children with the program learned as well as those with traditional teaching.")
Geography of the United States	Grade 5; 30 students (1964-65). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular course in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

PRINCE GEORGE'S COUNTY, MARYLAND (Upper Marlboro) (113,391)

Arithmetic--sets, geometry and numeration	Grades 4, 5, and 6; 290 students (1963-66). Programed text from a commercial source took students from 1 to 3 months to complete; used for enrichment as part of the regular school program. (Respondent reports, "Teachers have found this program to be effective for above-average pupils in the intermediate grades. Program is now on approved text list for intermediate enrichment. The number of teachers and pupils using this program will vary from year to year.")
Grammar	Grade 6; 69 students (1963-64; 1965-66). Programed text from a commercial source took students 1 week to complete; used as part of regular course in an informal experiment.
Arithmetic--fundamental operations	Grade 6; 69 students (1963-64; 1965-66). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of regular course in an informal experiment. (Respondent reports, "Used as a culminating activity--teacher and pupils reported great success for this purpose. The program will be integrated into the regular instructional program for 1965-66.")
Reading	Grade 1; 32 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of regular course in an informal experiment. (Respondent reports, "Pupils developed an interest in writing and spelling words. Reading achievement seemed to be above average for first grade. Program will be used in 1965-66 for corrective reading groups in primary grades.")
Geography	Grade 4; 183 students (1964-66). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of regular course in an informal experiment.

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BOSTON, MASSACHUSETTS (91,420)

Reading--comprehension, word power, rate	Grades 4, 5, and 6; approximately 34,000 students (1963-66). Programed text from a commercial source took students 1 year to complete; used with entire class as part of regular school program.

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NEW BEDFORD, MASSACHUSETTS (15,067)

Social studies--U. S. government	Grade 7; 30 students (1962-63). Program with machine from a university source took students from 2 to 4 weeks to complete; used as part of the regular course in a controlled experiment. (Respondent reports, "Considered very valuable. Allowed teacher to spend more time on discussion after basic facts had been assimilated.")

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USE OF PROGRAMED INSTRUCTION (Continued)

NEW BEDFORD, MASSACHUSETTS (Continued)

Arithmetic--modern mathematics	Grades 4, 5, and 6; 273 students (1963-65). Programed text from a commercial source took students 1 year to complete; used for enrichment in an informal experiment. (Respondent reports, "Considered valuable in preparing youngsters for the honors program in junior high school.")
Linguistics	Grade 10; 30 students (1964-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for enrichment with superior students in an informal experiment.
Modern grammar	Grade 10; 30 students (1964-65). Program with machine from a commercial source took students from 1 to 3 months to complete; used for remedial work in an informal experiment.

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QUINCY, MASSACHUSETTS (15,738)

Grammar	Grade 7; 54 students (1963-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course.
English composition	Grade 7; 30 students (1965-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course.
General mathematics	Grade 10; 20 students (1965-66). Programed text from a commercial source took students 1 year to complete; used as the regular course. (Respondent reports, "This program was added when we discovered that 20 students didn't know fundamentals sufficiently to continue in more advanced math.")

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SPRINGFIELD, MASSACHUSETTS (32,356)

Various subjects	Grades 7 through 12; 145 students (1961-66). Programs with machines, on various topics listed below, used for remedial work and enrichment in controlled and informal experiments. In general, programs from a commercial source took students 1 semester to complete. Topics were arithmetic, algebra, computers, electronics, slide rule, and trigonometry.
Computer programming	70 post-high school students (1964-65). Program with machine took students 1 year to complete; used as part of regular course in a controlled experiment. (Respondent reports, "Program used with post-secondary school students. Preliminary analysis of results appear favorable for employing machines complementing standard instructional procedures. Teacher and pupil attitudes are similarly very good.")

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USE OF PROGRAMED INSTRUCTION (Continued)

WORCESTER, MASSACHUSETTS (30,970)

Arithmetic	Grades 7 and 8; 200 students (1963-65). Programed text from a commercial source took students 1 year to complete; used as part of regular course in a controlled experiment. (Respondent reports, "Materials used with three slow-moving groups; two other groups used as controls. Analysis of test results revealed no significant difference in groups. Materials now used on individual basis.")

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BIRMINGHAM, MICHIGAN (16,110)

English composition	Grade 8; 60 students (1963-65). Programed texts from a commercial source took students 1 semester to complete; used as part of the regular course in an informal experiment. (Respondent reports, "An effective means of teaching composition. As a branching program, it provided extra assistance for some students and at the same time permitted other students to progress rapidly.")
English--figurative language in poetry	Grades 8 and 9; 154 students (1963-66). Teacher-made programed materials took students 1 week to complete; first used as part of the regular course in an informal experiment. Now used regularly as desired by teachers.
Grammar-parts of speech	Grades 10 and 11; 135 students (1963-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for remedial work as part of the regular school program. (Respondent reports, "Students who had previously had some instruction in parts of speech thoroughly enjoyed the program and seemed to receive satisfaction from doing the exercises. Other students needed considerable class instruction before starting the work.")
Grammar--review	Grade 12; 70 students (1963-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work as part of the regular school program.
Reading	Grade 1; 81 students (1964-66). Programed text from a commercial source took students 1 year to complete; used as basic reading program in an informal experiment. (Respondent reports, "Children and parents were very enthusiastic about the program. It was very helpful for new students and those returning from illness. Research at end of year indicated that children possessed a high level of aspiration and great confidence in reading ability. Use expanded to two first grades and individual remedial cases as a supplement to basic program.")

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DEARBORN, MICHIGAN (22,216)

Shop--electricity	Grades 11 and 12; 35 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course and for enrichment.
Grammar	Grade 12; 80 students (1964-66). Programed text from a commercial source took students 1 semester to complete; used for remedial work and as part of the regular course.

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USE OF PROGRAMED INSTRUCTION (Continued)

GARDEN CITY, MICHIGAN (13,407)

Arithmetic	465 selected students from grades 5 through 10 in 1963-64, and from grade 12 in 1964-65. Programed texts from many commercial sources took students from 2 to 4 weeks to complete unit they worked on; used for remedial work, enrichment, and as part of the regular course. In 1964-65, work with seniors was a part of a special remedial program.
Reading	15 students in grades 5 through 12 in 1963-64; 75 students in grades 9 through 12 in 1964-65. Programed texts in 1963-64 and programed texts and programs with machines in 1964-65, all from commercial sources, took students from 1 to 3 months to complete; used for remedial work, enrichment, and as part of the regular class.
Algebra	Grades 9 through 12; 660 students (1963-65). Programed texts from many commercial sources took students from 1 week to 3 months to complete individual units; used for remedial work and enrichment with individual students, and as part of the regular course in some classes.
Grammar	Grades 9, 10, and 11; 121 students (1963-65). Programed texts from commercial sources took students from 1 to 3 months to complete; used for enrichment and as part of the regular classwork.
Logarithms	Grades 10, 11, and 12; 64 students (1964-65). Programed text from a commercial source took students 1 week to complete; used as part of the regular course and for enrichment, as part of a larger experimental study.

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GRAND RAPIDS, MICHIGAN (32,810)

Algebra	Junior college; 277 students (1963-66). Programed text from a commercial source took students 1 semester to complete; used as part of regular course initially in an informal experiment, now as part of regular program. (Respondent reports, "Used in junior college evening program for students who had no algebra or needed a review. All beginning algebra in the junior college now in programed form.")
Grammar	Programed text from a commercial source used for 2 or 4 weeks at the high school level, for remedial work at all levels. Used in an informal experiment since 1964.
Elementary social studies and arithmetic	Programed materials from a commercial source used in grades K-6 as a supplement to the regular program.

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JACKSON, MICHIGAN (13,563)

English	Grade 7; 121 students (1963-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course.

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USE OF PROGRAMED INSTRUCTION (Continued)

JACKSON, MICHIGAN (Continued)

Reading — Grades 1 and 2; 88 students (1964-66).
Programed text from a commercial source took students 1 year to complete; used as part of the regular course. (Respondent reports, "Programed reading has been used experimentally in a first grade and in a second grade in a regular classroom setting. At the end of the school year these children took the same reading tests as did the students in other classrooms using the basic readers. The teachers and principal believe that the children with programed materials did somewhat better than did the pupils in the basic readers. The programed material has a strong linguistic-phonics approach. The same teachers are continuing the use of this material.")

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KALAMAZOO, MICHIGAN (18,354)

Language arts--dictionary — Grade 5; 29 students (1964-65).
Programed text from a commercial source used as part of the regular course in an informal experiment.

Social studies--westward expansion — Grade 5; 6 students (1965-66).
(Respondent reports, "The use of this program was on a voluntary basis and the students were allowed to progress as fast or as slow as they chose. The six students who used the program all said that it was interesting and not difficult. The students made very few mistakes in answering the questions and had no trouble with the vocabulary. As more teachers have become aware of the uses of programed materials, the number of requests for use has increased.")

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SAGINAW, MICHIGAN (17,298)

Algebra — Grade 9; 900 students (1961-65).
Programed text from a commercial source took students 1 year to complete; used as the regular course in an informal experiment at first, now as part of the regular program. (Respondent reports, "Students may choose either programed or regular algebra. Advantages are (1) no homework, (2) each student advances at own rate, (3) ease with which material may be begun after absence because of illness. Some students are able to do three semesters work in one year. Disadvantages are (1) some students do not apply themselves steadily, and (2) without homework, some parents feel out of touch. We plan to continue using the program indefinitely.")

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TAYLOR, MICHIGAN (17,371)

Reading — Grade 6; 73 students (1963-64).
Programed text from a commercial source took students from 1 to 3 months to complete; used as part of the regular course in an informal experiment.

Arithmetic--problem solving — Grades 5 and 6; 215 students (1964-66).
Programed text from a commercial source took students from 2 to 4 weeks to complete; used for enrichment in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

WATERFORD TOWNSHIP SCHOOL DISTRICT, MICHIGAN (Pontiac) (16,243)

Various subjects — Grades 7 through 11 (1962-63 and 1965-66). Programed texts have been used in mathematics, English, social studies, and grammar, by various teachers. These texts have been used for remedial work and for enrichment. Programed texts are also used in one 1st-grade class for the teaching of reading.

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ANOKA-HENNEPIN SCHOOL DISTRICT, MINNESOTA (Anoka) (19,968)

Algebra — Grades 10, 11, and 12; 31 students (1962-63). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment.

Mathematics — Grades 7, 8, and 9; 35 students (summers 1964 and 1965). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work and enrichment. (Respondent reports, "Seems very good for remedial work. We used it for summer school make-up work and in a few cases for enrichment. We will continue with programed materials for summer school make-up classes.")

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BLOOMINGTON, MINNESOTA (12,000)

Algebra — Grade 11; 180 students (1962-63). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment.

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JACKSON, MISSISSIPPI (37,043)

Grammar--study of the noun — Grade 8; 15 students (1964-65). Programed text from a commercial source took students 2 to 4 weeks to complete; used in a controlled experiment.

Algebra — Grade 8; 70 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as regular course. (Respondent reports, "Program used with accelerated 8th-grade classes in 1964-65. Pupils achieved on level comparable with regular classes. Will use again in 1965-66 on an experimental basis.")

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INDEPENDENCE, MISSOURI (14,077)

Machine shop — Grades 10, 11, and 12; 180 students (1962-66). Programed materials include slides, tapes, printed materials, and viewing booths, all teacher-produced. The material took students 1 year to complete; used as part of the regular course as an informal experiment at first, now as part of the regular school program. (Respondent reports, "Has truly individualized instruction and made instructor available for greater personal supervision. Also makes last hour class as effective as first.")

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USE OF PROGRAMED INSTRUCTION (Continued)

INDEPENDENCE, MISSOURI (Continued)

Geometry	Grade 10; 30 students (1965-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment.

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KANSAS CITY, MISSOURI (74,523)

Basic mathematics	Grade 9; 274 students (1963-64). Programed text from a commercial source used during regular academic year or equivalent instructional time; major instructional vehicle in a controlled experiment.

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BILLINGS, MONTANA (16,382)

Reading	Grades 5 and 6; 7,500 students (1961-65). Programed laboratory materials from a commercial source took students from 1 to 3 months to complete; used at first on an experimental basis, now as part of the regular reading program for all 5th- and 6th-year students.
Grammar	Grades 10, 11, and 12; 200 students (1961-65). Programed text from a commercial source took students 1 year to complete; used for remedial work in an informal experiment. (Respondent reports, "Programed grammar texts are used as a substitute for the formal grammar in our slow-learner course of study. Programed texts enable pupils to move at their own speed and show results that were not accomplished by formal grammar.")

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OMAHA, NEBRASKA (59,041)

Algebra	Grades 9 and 10; 25 students (1962-63). Programed text from a commercial source took students 1 semester to complete; used in an informal experiment in summer school.
Advanced algebra	Grade 12; 30 students (1963-64). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment, to provide a third year of algebra for seniors.

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CLARK COUNTY, NEVADA (Las Vegas) (57,657)

Plane geometry	35 students (1964-65). Programed text from a commercial source took students 1 year to complete; used for enrichment in an informal experiment.
General mathematics	100 students (1965-66). Programed text from a commercial source took students 1 year to complete; used in an informal experiment.
Algebra	10 students (1965-66). Programed text from a commercial source took students 1 year to complete; used in an informal experiment to offer Algebra II to homebound students.

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USE OF PROGRAMED INSTRUCTION (Continued)

CLARK COUNTY, NEVADA (Continued)

Calculus	6 students (1965-66). Programed text from a commercial source took students 1 year to complete; used for enrichment in an informal experiment.

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BUFFALO, NEW YORK (73,501)

Algebra	Grade 8; 180 students (1962-65). Programed text from a commercial source took students 1 year to complete; used as part of regular course in an informal experiment. (Respondent reports, "Program continues on a limited basis with class instruction about 3 days a week, programed text 2 days. Program is used only with accelerated pupils.")

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FARMINGDALE, NEW YORK (12,824)

Language arts--vocabulary building	Grades 4, 5, and 6; 209 students (1961-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for enrichment in a controlled experiment. (Respondent reports, "Program developed and modified in keeping with experience of teacher and pupils. Program originally developed for 8th-graders. Used with gifted 4th- and 5th-graders. All pupils improved, but many students found the program boring at first. Teacher has improved the program; it is now part of the enriched curriculum.")
Arithmetic--modern mathematics	Grades 4, 5, and 6; 132 students (1962-65). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of the regular course in a controlled experiment.

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NEW YORK, NEW YORK (1,065,909)

Reading	Grades 1 and 2; 759 students (1962-65). Programed text from a commercial source took students 1 year to complete; used as part of regular course in both informal and controlled experiments. (Respondent reports, "A controlled experiment in 1963-64 and 1964-65 showed no significant achievement differences between the program group and the control group.")
Geography--latitude and climate; continents and oceans	Grades 4 and 5; 1,023 students (1962-65). Programed text from a commercial source took students 1 semester to complete; used as part of regular course in an informal experiment.
Social studies--latitude and longitude	Grades 5 and 6; 1,254 students (1962-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of regular course in an informal experiment. (Respondent reports, "Program was used in some 6th-year classes with pupils retarded in reading. In general, pupils made substantial gains because of the program. Teachers received it well. We will continue pilot use of the program in 1965-66 in 18 5th- and 6th-grade classes.")
Language arts--study skills	Grades 4, 5, and 6; 825 students (1962-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of regular course in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

NEW YORK, NEW YORK (Continued)

Reading--context clues, comprehensive structural analysis	Grades 4, 5, and 6; 7,150 students (1964-65). Programed text from a commercial source took students from 1 to 3 months to complete; used in a pilot study to determine suitability for use in elementary schools. (Respondent reports, "Children in grades 4, 5, and 6 experienced difficulty with vocabulary loads and concepts. Those who could read the program well did not need instruction in the skills taught by it. Lack of pre- and post-tests made it difficult for teachers to evaluate achievement effectively.")

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ROCHESTER, NEW YORK (45,395)

Mathematics--patterns and sequences	Grades 5, 6, and 7; 1,144 students (1963-65). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular course in a controlled experiment. (Respondent reports, "In 1963-64, this program was used experimentally with heterogeneous groups of 5th- and 6th-grade students. In 1964-65, this program was used with children of average ability in 5th and 6th grades and with children of low ability in grade 7. Future use of this program will be as enrichment for the aforementioned groups.")
Science--magnets	Grades 5, 6, and 7; 887 students (1963-65). Programed text produced by an employee of the school system took students from 1 to 3 months to complete; used as part of regular course in a controlled experiment. (Respondent reports, "Experimental use of this programed text combined with science experiences indicated that it should be used with average 5th- and 6th-graders and low-ability 7th-graders. The teachers and students are very enthusiastic about the unique combination of programed instruction with experimental situations for the reinforcement of learning.")
Mathematics--probability	Grades 5, 7, and 12; 417 students (1963-65). Programed text from a commercial source took students from 1 to 3 months to complete; used in a controlled experiment. (Respondent reports, "In 1963-64, this program was used experimentally. On the basis of the findings, in 1964-65 the program was used experimentally with gifted 5th-graders, at grade 7 for enrichment, and at grade 12 as part of the instructional program. In the future this program will be used with gifted 5th- and 6th-graders, as enrichment for the junior high school students, and in providing good basic instruction for students who will not be taking the regents examination in mathematics.")
Social studies--map skills	Grades 5, 6, and 7; 62 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of regular course. (Respondent reports, "This program was used in the latter part of the year with heterogeneous groups in grades 5 through 7. All indications are that this program will be widely used. Teachers have requested this program for introduction, review, and remedial use.")
Reading skills	Grades 7, 8, and 9; 212 students (1964-65). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular school program. (Respondent reports, "This program worked well with above-average 7th-graders and average 8th- and 9th-graders. Teachers and students benefited by having a chapter approach. This allowed for the use of instructional units as needed rather than a program of continuous development.")

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USE OF PROGRAMED INSTRUCTION (Continued)

SEWANHAKA CENTRAL HIGH SCHOOL DISTRICT, NEW YORK (Franklin Square) (12,025)

Algebra	Grade 9; 30 students (1962-63). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment.
Geometry	Grade 10; 30 students (1962-63). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment.
Electricity and electrons	Grade 12; 8 students (1963-64). Programed text from a commercial source took students over 1 year to complete; used for remedial work and as part of the regular course in a controlled experiment.
Home economics--clothing, foods, lighting	Grades 7, 8, 10, 11, and 12; 20 students (1964-65). Teacher-made programed text took students 1 week to complete; used for enrichment and as part of the regular school program.
Business arithmetic	Grade 10; 25 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment.

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SYRACUSE, NEW YORK (29,734)

French	Grade 9; 12 students (1964-65). Program with machine from a university source used on experimental basis to test materials.
Spanish	Grade 9; 11 students (1964-65). Program with machine from a university source used on experimental basis to test materials.

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DURHAM, NORTH CAROLINA (15,285)

Algebra and general mathematics	Grades 9 and 11; 1,208 students (1961-65). Programed texts from a commercial source used as the regular school program. (Respondent reports, "The general opinion of the teachers is that the material is good for average and above-average students. If a teacher has five classes using programed material, he needs clerical assistance. We are continuing but not expanding our use of programed texts.")

* * *

HIGH POINT, NORTH CAROLINA (13,108)

General mathematics	Grade 9; 30 students (1963-64). Programed text from a commercial source took students 1 semester to complete; used as part of the regular school program. (Respondent reports, "This was a slow group and the results were not better than with the traditional text. However, the pupils were more interested in the programed material than they had been in the regular text.")

(Continued on next page)

USE OF PROGRAMED INSTRUCTION (Continued)

HIGH POINT, NORTH CAROLINA (Continued)

General mathematics	Grade 9; 15 students (1964-65). Programed text from a commercial source took students about 3 months to complete; used for remedial instruction of pupils who had failed first semester. (Respondent reports, "Programed material brought understanding of fundamentals to most of these students.")
General mathematics	Grade 9; 142 students (1964-66). Programed text from a commercial source took students 2 to 3 months to complete; used as part of the regular course in an informal experiment and as part of the regular school program. (Respondent reports, "Pupils liked the material and felt at home with it. One very slow section of 25 pupils was unable to grasp material in programed form.")
Arithmetic--new mathematics	Used with elementary teachers in 1963-64. Programed text from a commercial source took teachers from 2 to 4 weeks to complete; used in inservice training program.

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WINSTON-SALEM, NORTH CAROLINA (Winston-Salem) (46,977)

Mathematics--algebra, plane geometry, solid geometry, trigonometry	Grades 9, 10, 11, 12, and adult education (1960-65). Programed texts from a commercial source took students 1 year to complete; used in adult school, small-class situations, and in summer school for remedial work and as part of the regular course. (Respondent reports, "Programs have been used in adult education classes, summer schools, and in small schools where 15 or less students wanted a course. By using programed material we could put two or more classes together and use one teacher. In testing, we found no difference between achievement of students taught with this method and students from a conventional class.")
Grammar	Grades 10, 11, and 12 (1961-65). Programed texts from a commercial source took students 1 year to complete; used as part of the regular course, for remedial work and for enrichment, in an informal experiment.

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BEREA, OHIO (14,976)

Algebra	Grade 9; 30 students (1963-64). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. (Respondent reports, "Program was used to accommodate regular pupils who moved into district with traditional mathematics background.")

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CANTON, OHIO (22,641)

Algebra and plane geometry	Grades 9 and 10; 20 students (1963-64). Programed texts from a commercial source took students from 1 to 2 months to complete; used as the regular course in an informal experiment. (Respondent reports, "Programs of two separate subjects taught at the same time to two different classes of pupils.")

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USE OF PROGRAMED INSTRUCTION (Continued)

CINCINNATI, OHIO (89,187)

English vocabulary — Grades 7, 8, and 9 (1962-63). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of regular course in a controlled experiment.

Reading--word study and spelling skills — Grade 1; 68 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as the regular course in a pilot study. (Respondent reports, "It was found that there was significant achievement on standardized tests in word study and spelling skills. The program will be continued in the 1965-66 school year on an experimental basis.")

Basic mathematics--whole numbers — Grade 8; 180 students (1964-65). Program with machine, both from a commercial source, took students from 1 to 3 months to complete; used for remedial purposes as part of a controlled experiment. (Respondent reports, "The results showed that the group taught remedial mathematics did as well but not better than those who used the programed materials. The programed material was good in that it released the teacher from preparing the necessary remedial materials.")

American history--the Bill of Rights — Grade 11; 360 students (1964-65). Programed text from a commercial source took students 1 week to complete; used as part of regular course in a controlled experiment. (Respondent reports, "It was found that this program was more effective in the learning and retention of these facts than simple reading in textbook style. The students felt that they learned more and enjoyed this method of learning. The program will continue in the future at the option of the teachers of American history.")

Various subjects — High school and adult education (1964-65). Programs with machines from a commercial source used for enrichment in an informal experiment. (Respondent reports, "The machines were used in the following areas: computer mathematics, career English, grammar usage, computers, electronics, map reading, career arithmetic, slide rule fundamentals, algebra, trigonometry, effective business letters, food sanitation, and improving punctuation and writing. These programs were used by high school students and in the adult education program on a voluntary basis. High interest was shown by both students and administrators in these various programs.")

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COLUMBUS, OHIO (114,651)

English usage — Grade 10; 32 students (1961-62). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment.

Mathematics — Grades 7 and 8; 65 students (1963-64). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment.

Algebra — Grade 9; 28 students (1963-64). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

LORAIN, OHIO (15,400)

Grammar	Grades 7 through 11; 2,100 students (1962-66). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of the regular course in a controlled experiment. (Respondent reports, "The program is now used with all 'average' 10th-graders and some able freshmen.")
Study skills	Grades 7 and 8; 600 students (1963-66). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as enrichment as part of the regular school program.
Arithmetic	Grades 4 and 5; 1,000 students (1963-64). Programed text from a commercial source took students 2 to 4 weeks to complete; used in the transition from traditional to modern mathematics.
Language arts--spelling, grammar, and vocabulary	Grades 4, 5, and 6; 90 students (1963-65). Program with machine from a commercial source took students from 2 to 4 weeks to complete; used for enrichment in an informal experiment. (Respondent reports, "The teaching machines were used by several schools for enrichment and for experience with teaching machines.")

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WARREN, OHIO (14,056)

Grammar	Grade 9; 518 students (1961-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment. (Respondent reports, "Program used with accelerated classes. This method of teaching English grammar was found to be as good or better than the conventional method for these classes. The method consumed less instructional time.")

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WILLOUGHBY-EASTLAKE SCHOOL DISTRICT, OHIO (Willoughby) (13,170)

Mathematics	Grade 9; 63 students (1964-66). Programed text from a commercial source took students 1 year to complete; used for enrichment as part of the regular school program.
Mathematics	150 students (1964-66). Programed text from a commercial source took students 1 year to complete; used for remedial work with individual students as part of the regular school program.
Reading	Grades 7 and 8; 60 students (1965-66). Programed text from a commercial source took students 1 year to complete; used for remedial work as part of the regular school program. (Respondent reports, "This program has freed the teacher so that he can provide individual help to students who need it.")
Science experiments	Grades 7 and 8; 260 students (1965-66). Programed course of experiments from a commercial source took students 1 year to complete; used as part of the regular school program.

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USE OF PROGRAMED INSTRUCTION (Continued)

YOUNGSTOWN, OHIO (28,494)

Algebra	Grades 8 and 9; 52 students (1962-64). Programed text from a commercial source took students 1 year to complete; used as the basic course in an informal experiment in eighth grade in 1962-63, and in a controlled experiment in the ninth grade in 1963-64. (Respondent reports, "In the latter, there was a statistically significant superiority in the achievement of the control group.")
English	Grade 10; 30 students (1963-64). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. (Respondent reports, "While the program was originally used with a better-than-average class, it was found in practice to be better suited to average or below-average groups. After the novelty left, the class and teacher were better satisfied with a conventional textbook.")

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TULSA, OKLAHOMA (77,193)

Study skills	Grade 7; 150 students (1963-64). Programed text from a commercial source took students 1 semester to complete; used as part of the regular program in a controlled experiment. (Respondent reports, "Program used by one junior high school teacher with heterogeneous groups. The pupils involved, along with a control group, are being followed through ninth grade to test the long-term effects of the study skills program.")
Geography--latitude and longitude	Grade 7; 124 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of regular course in a controlled experiment.

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PORTLAND, OREGON (78,493)

Algebra	Grades 8 and 9; 398 students (1962-64). Experiment used programed materials as part of a study group project in a variety of ways. In all cases the material was used as part of the regular course for a full year. The materials varied in form--scrambled book, program with machine, and regular program. In some cases students used programed material but teacher conducted class in conventional fashion. Only 16 8th-grade students were involved, and although the teacher reported that students appeared to be learning at the time, data indicated that final success was not as great as appearances predicted. During 1963-64, revised materials were used and data seemed to indicate much improvement.

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SALEM, OREGON (19,961)

Arithmetic	Grade 6; 200 students (1963-65). Programed text from a commercial source took students 1 semester to complete; used as part of the regular course in an informal experiment. (Respondent reports, "These programs were used with advanced students to familiarize them with one aspect of modern mathematics. A few students in each of several rooms used the program and texts. No vigorous evaluation was made. It is a temporary program to fill a need for 2 or 3 years until all children are provided with a modern mathematics program.")

(Continued on next page)

USE OF PROGRAMED INSTRUCTION (Continued)

SALEM, OREGON
(Continued)

Geography--map symbols, map grid	Grades 3, 4, and 5; 180 students (1965-66). Teacher-made programed texts took students from 1 to 4 weeks to complete; used as part of the regular course in an informal experiment.

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ALLENTOWN, PENNSYLVANIA
(17,923)

Reading	Grades kindergarten, 1, and 2; 117 students (1963-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment. (Respondent reports, "Successful in beginning reading, particularly in the word attack skills.")
Grammar	Grade 9; 145 students (1963-66). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of the regular course in an informal experiment and as part of the regular school program. (Respondent reports, "This program began as an informal experiment, but before long it became evident that the value of the program was as a supplement to the regular course. Since this became evident, the program has been used as a part of the regular course.")

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ERIE, PENNSYLVANIA
(22,594)

Calculus	Grade 12; 20 students (1963-64). Programed text from a university source took students 1 semester to complete; used for enrichment in an informal experiment.
Grammar	30 students, (summers 1963, 1964, and 1965). Programed text from a commercial source took students a full summer school session to complete; used for remedial work with individual students.
Geography	Grade 8; 180 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of the regular course in an informal experiment.
Physics	Grade 12 (1964-66). Programed text from a university source took students 1 semester to complete; used as enrichment with more capable students in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

PHILADELPHIA, PENNSYLVANIA (259,200)

Modern mathematics--groups, fields, abstract algebra	Grade 12; 28 students (1962-66). Programed text from a commercial source took students from 1 to 3 months to complete; used for enrichment purposes with an ungraded class of superior students ranging from 2 to 10 students.
Arithmetic	Grades 4 and 5; 510 students (1963-66). Teacher-made programed text took students 1 year to complete; used as enrichment in regular school program. (Respondent reports, "Program was used initially with one class of bright children in one school, as an enrichment activity to supplement the regular math program. The teacher, pupils, and parents were very enthusiastic. It was subsequently tried with slow and average pupils and found to be too difficult. It is being used in several schools with academically talented children.")
Geometry and Algebra II	Grades 10 and 11; 50 students (1963-66). Programed texts from a commercial source took students 1 year to complete; used as part of the regular course.
Algebra	Grade 9; 560 students (1963-65). Two programed texts from a commercial source took students 1 year to complete; used as part of regular course and as a controlled experiment.

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PITTSBURGH, PENNSYLVANIA (78,735)

Grammar	Grades 7 and 9; 3,600 students (1960-65). Programed text from a commercial source took students from 1 to 3 months to complete; used as supplementary material as part of regular program. (Respondent reports, "Excellent for supplementary individual work in regular classes.")
Arithmetic--addition and fractions	Grades 1 and 3; 70 students (1961-62). Teacher-made program, used with machine, took students 1 year to complete; used as part of regular course in an informal experiment. Addition program used with first grade, fractions with third grade.
Grammar	Grades 6, 7, and 8; 6,000 students (1961-65). Programed text from a commercial source used during entire school year for supplementary work and review as part of the regular school program.
Algebra	Grade 8; 1,000 students (1961-65). Programed text from a commercial source took students 1 year to complete; used as part of regular course. (Respondent reports, "Used for accelerated course where number of children in the room is limited. Use being discontinued; need is gone.")
Science	Grade 9; 80 students (1961-62). Programed text from a university source took students 1 semester to complete; used as part of regular course in a controlled experiment.
Calculus	Grade 12; 30 students (1962-65). Programed text from a commercial source took students 1 year to complete; used as complete course. (Respondent reports, "Works well with selected students as individuals or in small groups.")

(Continued on next page)

USE OF PROGRAMED INSTRUCTION (Continued)

PITTSBURGH, PENNSYLVANIA (Continued)

Arithmetic	Grades 7 and 8; 250 students (1963-65). Programed text from a commercial source used as supplementary material throughout the year.

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READING, PENNSYLVANIA (14,631)

English	Grade 12; 60 students (1961-62, 1963-64, 1964-65). Programed text from a commercial source took students 1 year to complete; used as the regular course in a controlled experiment.

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PROVIDENCE, RHODE ISLAND (27,823)

Algebra	Grade 10; 4 students (1963-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment. (Respondent reports, "Seven pupils wanted to take an advanced course in algebra. Since this was too few, we put four first-year algebra students in as an experiment in programed instruction. The course started in January. In June one graduated; the other three continued in September and 7 more were added. We found that the three students forgot more than usual over the summer.")
Geometry	Grade 10; 131 students (1963-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment and later as part of the regular school program. (Respondent reports, "We found that the program was good but had to be supplemented to encourage sustained reasoning rather than one-word responses. The teacher is necessary. This September we are experimenting with a larger class--41 students as opposed to 30--and two teachers.")

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ROCK HILL, SOUTH CAROLINA (12,875)

Reading	Grades 4 through 8; 450 to 5,744 students (1961-65). Programed materials from a commercial source took students 3 months to complete; used as part of the regular school program.
Arithmetic	Grade 4; 184 students (1962-65). Program with machine, from a commercial source, took students from 2 to 4 weeks to complete; used for remedial work in an informal experiment. (Respondent reports, "Enough progress was made by the majority of pupils to warrant continued use. The teachers prefer texts to machines.")
Science--meteorology	Grade 8; 22 students (1963-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for enrichment in an informal experiment.
Grammar	Grade 9; 72 students (1963-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work in an informal experiment.
Solid geometry	Grade 11; 12 students (1964-65). Programed text from a commercial source used for remedial work in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

RAPID CITY, SOUTH DAKOTA (13,561)

Reading	Grades 1 and 2; 270 students (1964-66). Programed text from a commercial source took students one year to complete; used as part of the regular course in an informal experiment and as part of the regular school program.
Grammar	Grade 10; 90 students (summer 1965). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for remedial work in summer school in an informal experiment.

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KNOX COUNTY, TENNESSEE (Knoxville) (18,211)

Arithmetic	Grades 4, 5, and 6; 665 students (1963-66). Programed text from a commercial source used for enrichment in an informal experiment. (Respondent reports, "The program has been received very well by teachers and students. Students in the average classroom who need to be challenged find the program very stimulating.")
Arithmetic	Grades 4 through 8; 580 students (1962-66). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work in an informal experiment. (Respondent reports, "A fine program designed to provide remedial help. The program can be used at any grade level, 4 through 8. Teachers like the materials and request them in sets of 10 to 15, depending on the number of students in need of this kind of help.")
Grammar	Grades 5 through 8; 910 students (1962-66). Programed text from a commercial source; used for remedial work, for enrichment, and as part of the regular course, in an informal experiment.
Grammar	Grades 7 and 8; 540 students (1962-63, 1964-65). Programed text from a commercial source took students 1 semester to complete; used for remedial work, enrichment, and as part of the regular course, in a controlled experiment. (Respondent reports, "The value of the program is in its individualized use for remedial work and enrichment, depending upon the grade and the purposes of the class.")
Algebra	Grade 9; 240 students (1962-63). Programed text from a commercial source; used for one year as part of the regular course in a controlled experiment.

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SHELBY COUNTY, TENNESSEE (Memphis) (40,427)

Plane geometry	Grade 11; 4 students (1961-62). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. (Respondent reports, "The program was used in a small high school by a few students having schedule conflicts. Program was well received but the teacher thought the students' work was not so satisfactory as that of pupils in the regular class. The program was used only one year and then discontinued.")

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USE OF PROGRAMED INSTRUCTION (Continued)

SHELBY COUNTY, TENNESSEE (Continued)

English — Grades 7 and 8; 285 students (1963-64). Programed text from a commercial source took students 1 year to complete; used in a variety of ways, as described. (Respondent reports, "In 1962-63, the program was used in a controlled experiment. It was well received by pupils and parents. The teacher thought it proved beneficial to pupils who wanted to progress beyond regular class work. In 1963-64 and 1964-65, the program was used by slow-learners to real advantage in remedial work. The teacher plans to continue use of the programed material. In 1965-66, the program is being used on a voluntary basis. Much interest is displayed by the students needing remedial work or desiring acceleration. The teacher is very pleased and plans to continue the program on a voluntary basis.")

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ABILENE, TEXAS (19,164)

Arithmetic — Grade 9; 200 students (1963-65). Programed text from a commercial source took students 1 year to complete; used for remedial work as part of the regular school program. (Respondent reports, "Program used with a remedial ninth grade to strengthen basic skills in arithmetic.")

Grammar — Grade 9; 30 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for remedial work in a controlled experiment.

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EL PASO, TEXAS (58,302)

Algebra — Grade 9; 240 students (1961-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment in 1963-64 and as part of the regular program in 1964-65. (Respondent reports, "The program was used with students who had been assigned to regular algebra and geometry units. No attempt was made to group the students. It was tried informally the first year and in one school it was not received well at all; in the other school the teacher has continued to use it ever since. The program has also been used in summer school and has worked so successfully that planned expansion is proposed in this direction.")

Plane geometry — Grade 10; 120 students (1961-65). Programed text from a commercial source took students 1 year to complete; used as part of regular course.

Mathematics — Grades 9 and 10; 800 students (1963-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment in 1963-64, and as part of the regular school program in 1964-65. (Respondent reports, "The program was used with students who were very low in mathematics achievement. It was received very well by pupils and teachers in cases where the students were properly screened. In these classes the work was more of a remedial nature but offered a great deal of flexibility in the teaching of the course as a whole.")

(Continued on next page)

USE OF PROGRAMED INSTRUCTION (Continued)

EL PASO, TEXAS (Continued)

Grammar — Grades 9 through 12; 1,500 students (1963-66, 1964-65 summer session). Three programed texts from commercial sources have been used in a variety of ways. (Respondent reports, "In 1963-66, one program was used for six weeks of grammar study for remedial classes in which reading instruction received major emphasis. During one summer session, the same text was used to diagnose competence in basic grammar. One teacher was very enthusiastic; one used only parts of the text. Students said they understood parts of speech much better. We are increasing the use of the programed text in the next summer session. Two texts on grammar, usage and mechanics are being used for a two- to four-week period by individual students as a part of grammar emphasis in regular classes during 1965-66.")

English — Grade 12; 30 students (1965-66).
Programed text from a commercial source took students 2 to 4 weeks to complete; used as enrichment in an informal experiment. (Respondent reports, "One teacher will use program as a review for seniors in a regular class. This will be done just before college entrance examination time.")

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RICHARDSON, TEXAS (19,031)

Grammar — Grades 8 and 9; 178 students (1963-65, summer 1964).
Programed text from a commercial source used for remedial work and enrichment as part of the regular school program. (Respondent reports, "In summer school the program provided a means of filling the needs of widely divergent student backgrounds.")

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SPRING BRANCH SCHOOL DISTRICT, TEXAS (Houston) (26,146)

Algebra — Grade 9; 150 students (1961-62).
Programed text from a commercial source took students 1 year to complete; used as the complete course in a controlled experiment.

Algebra — Grades 10 and 11; 150 students (1961-62).
Programed text from a commercial source took students 1 year to complete; used as the complete course in an informal experiment.

Algebra — Grade 8; 30 students (1962-63).
Programed text from a commercial source took students 1 year to complete; used as the complete course in an informal experiment. (Respondent reports, "Very good results with this accelerated class.")

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WICHITA FALLS, TEXAS (19,000)

Reading — Grades 3 through 8; 10,700 students (1960-66).
Programed text from a commercial source took students 1 year to complete; used for remedial work and as part of the regular course.

English — Grade 12; 110 students (1964-66).
Programed text from a commercial source used for remedial work as part of regular school program. (Respondent reports, "Standardized tests and other tests revealed need of some seniors for work in fundamentals of English. The programed text was supplemented by readings in English literature, by films, and by a course in analysis and composition.")

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USE OF PROGRAMED INSTRUCTION (Continued)

WICHITA FALLS, TEXAS (Continued)

Spanish, French, German	Grades 9 through 12; 516 students (1965-66). Program with machine from a commercial source took students 1 year to complete; used as part of regular school program.

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DAVIS COUNTY, UTAH (Farmington) (29,683)

Grammar	Grades 10 and 11; 90 students (1964-65). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work as a part of the regular school program.
English--composition	Grade 12; 120 students (1965-66). Programed text from a commercial source took students from 1 to 3 months to complete; used for enrichment as part of the regular school program. (Respondent reports, "This program shows promise. The teacher feels that excellent results are being produced here.")

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OGDEN, UTAH (18,300)

Mathematics--algebra, plane geometry, trigonometry	Grades 9 through 12; 305 students (1961-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment.
French	Grades 9 through 12; 272 students (1961-66). Programed text with films from a commercial source took students 1 year to complete; used as part of the regular school program. (Respondent reports, "Initially the program was used in beginning French. It is now used as enrichment for the advanced class. The films receive the most use now with the text receiving only limited use.")
English	Grades 10, 11, and 12; 380 students (1963-66). Programed text from a commercial source took students 1 year to complete; used for remedial work as part of the regular school program. (Respondent reports, "The programed book is used for remedial or make-up work with students who need strengthening in some fundamental concepts.")
Chemistry--inorganic compounds, gas laws	Grades 10, 11, and 12; 340 students (1964-66). Programed text from a commercial source took students 1 week to complete; used for enrichment as part of the regular school program.

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SALT LAKE CITY, UTAH (38,651)

Algebra	Grades 10, 11, and 12; 30 students (1962-63). Program with machine, from a commercial source, took students 1 semester to complete; used for remedial work and as part of the regular course in the regular school program.
Arithmetic	Grades 4, 5, and 6; 108 students (1963-65). Programed text from a commercial source took students 1 year to complete; used for enrichment purposes in an informal experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

SALT LAKE CITY, UTAH (Continued)

Geography--map skills	Grade 5; 60 students (1964-65). Programed text from a commercial source took students 1 to 3 months to complete; used for enrichment in an informal experiment.

* * *

ALEXANDRIA, VIRGINIA (21,419)

Algebra	Grades 9 and 10; 51 students (1964-65). Programed text from a commercial source took students from 1 semester to 1 year to complete; used as part of the regular course. (Respondent reports, "Program used with algebra students, both advanced students and those who were failing. Advanced students finished the course earlier than the other group; no students failed.")
Mathematics	200 students (1964-66). Programed text from a private agency took students 1 year to complete; used as part of the regular course.
Business mathematics	Grades 9 and 10; 30 students (1964-65). Programed text from a commercial source took students 1 semester to complete; used as part of the regular course in a controlled experiment in 1964-65 and as part of the regular school program.
Biology	Grades 9 and 10; 460 students (1964-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular school program.
Physics	Grades 11 and 12; 38 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular school program.

* * *

ARLINGTON COUNTY, VIRGINIA (Arlington) (26,089)

Russian	Grade 11; 16 students (1962-63). Programed text from a commercial source took students from 1 to 3 months to complete; used for enrichment in an informal experiment.
Descriptive statistics	Grade 12; 10 students (1963-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for enrichment in an informal experiment.
Algebra	Grade 10; 155 students (1963-65). Programed text from a commercial source took students 1 year to complete; used for remedial work as part of the regular school program.

* * *

NORFOLK, VIRGINIA (58,014)

Arithmetic	Grades 2, 4, 5, and 6; 1,360 students (1960-63). Programed text from a university source, later published commercially, took students 1 year to complete; used as part of regular course in a controlled experiment.

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USE OF PROGRAMED INSTRUCTION (Continued)

RICHMOND, VIRGINIA (44,725)

Modern arithmetic	Grade 4; 29 students (1963-64). Programed text from a commercial source took students from 1 to 3 months to complete; used for enrichment in an informal experiment. (Respondent reports, "This was a fun time for a class of 4th-grade children of average and below-average ability. There were no tests or grades and evaluation was entirely subjective, but the project was successful. The children learned without pressure, and their pleasure was obvious.")
Mathematics--slide rule	Grades 11 and 12; 36 students (1964-65). Program with machine, from a commercial source, took students from 2 to 4 weeks to complete; used for enrichment in an informal experiment. (Respondent reports, "All students were volunteers, and all completed the program successfully. Teacher-made tests indicated mastery of the subject. Narrative impressions of the students were entirely favorable.")
Language arts--spelling and reading skills	Grades 7, 8, and 9; 50 students (1964-65). Program with machine, from a commercial source, took students from 2 to 4 weeks to complete; used for remedial work as part of the regular school program. (Respondent reports, "Slow learners used materials at levels and times they needed. Short work time and much supplementary help produced measurable results. Comments of students generally favorable.")

* * *

ROANOKE, VIRGINIA (19,389)

Algebra--traditional	Grade 9; 180 students (1960-61). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment.
Algebra--modern	Grade 9; 60 students (1961-62). Programed text from a private agency took students 1 year to complete; used as part of the regular course in a controlled experiment.
Spanish	Grades 9 and 10; 270 students (1961-63). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment.
Government--free enterprise system	Grade 12; 90 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of the regular course in an informal experiment.

* * *

CLOVER PARK SCHOOL DISTRICT, WASHINGTON (Tacoma) (13,355)

Algebra	Grade 10; 60 students (1962-64). Programed text from a commercial source took students 1 year to complete; used as part of the regular course.
Grammar	Grades 10 and 12; 130 students (1962-66). Programed text from a commercial source took students 1 semester to complete; used for remedial work as an informal experiment. (Respon-

(Continued on next page)

USE OF PROGRAMED INSTRUCTION (Continued)

CLOVER PARK SCHOOL DISTRICT, WASHINGTON (Continued)

Grammar (Continued)	dent reports, "The programed text was not successful with seniors. It is considered quite successful with low-ability students and those without background. We will continue to use this program as a part of the instruction at the 10th-grade level, for from 10 to 20 minutes per day during 1 semester.")
Algebra	Grades 10, 11, and 12; 80 students (1963-64). Programed text from a commercial source took students 1 year to complete; used as part of the regular course.
Arithmetic	Grades 7 and 8; 9 students (1964-65). Programed text from a commercial source took students from 1 to 3 months to complete; used to introduce students with a traditional background to concepts of modern math. Program was used at option of individual student, but by recommendation of teacher.
English--poetry	Grades 10 and 12; 90 students (1964-66). Programed text from a commercial source took students from 1 to 3 months to complete; used as part of the regular course in an informal experiment.
Mathematics--group theory	Grade 12; 11 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of the regular course in an informal experiment. (Respondent reports, "Fair results; these students were interested in mathematics and were challenged by the material. The teacher felt that use of programed materials for a longer period of time would have been as successful.")

* * *

EDMONDS SCHOOL DISTRICT, WASHINGTON (Lynnwood) (23,683)

Reading	Primary grades; 120 students (1965-66). Programed text from a commercial source took students 1 semester to complete; used for remedial work as an informal experiment.
Reading	Grades 1 through 6; 30 students (1965-66). Programed text from a commercial source took students from 2 to 4 weeks to complete; used for remedial work as part of an informal experiment.
English	Grades 9, 10, and 11; 400 students (1965-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course.
Business machines	Grades 10, 11, and 12; 60 students (1965-66). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of the regular course.

* * *

SEATTLE, WASHINGTON (91,552)

Statistics	Grades 11 and 12; 20 students (1962-63). Programed text from a commercial source took students 1 semester to complete; used as part of regular course in an informal experiment. (Respondent reports, "Offered as elective subject in addition to regular program. Students met with teacher three times a week.")

(Continued on next page)

USE OF PROGRAMED INSTRUCTION (Continued)

SEATTLE, WASHINGTON
(Continued)

Solid geometry — Grade 10; 10 students (1963-65).
Programed text from a commercial source took students 1 semester to complete; used as part of regular course as an elective outside of the regular class offerings.

English--grammar — Grade 12; 31 students (1964-65).
Programed text took students from 1 to 3 months to complete. Used in an informal experiment. (Respondent reports, "Program used with remedial class of 12th-graders. Teacher felt that students accepted the program eagerly. When same material was tried with average or above-average students, however, they seemed to feel that they were held back by the programed text.")

* * *

SPOKANE, WASHINGTON (34,274)

Algebra — Grade 9; 36 students (1961-62).
Programed text from a commercial source took students 1 year to complete; used as the regular course as part of the regular school program.

Grammar and usage — Grade 9; 86 students (1961-62).
Programed text from a commercial source took students 1 year to complete; used as part of the regular course in a controlled experiment. (Respondent reports, "The program appeared to be as effective as traditional methods in developing English expression. It was ineffective for most remedial students, but extremely effective for many students of above-average ability.")

* * *

TACOMA, WASHINGTON (32,286)

Geometry — Grade 10; 66 students (1960-61).
Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. (Respondent reports, "Negative reaction by both teachers and students because of inadequate content. Program was dropped after one semester.")

Grammar — Grade 8; 125 students (1960-61).
Programed text from a commercial source took students 1 semester to complete; used as part of the regular course in a controlled experiment. (Respondent reports, "Two teachers used the program. One was impressed favorably; one negatively. Program results showed: (1) equal median achievement for control and experimental groups; (2) significantly greater increase in achievement variability in experimental group; (3) more time to do other things for both teacher and pupils in the experimental group.")

* * *

CABELL COUNTY, WEST VIRGINIA
(Huntington) (22,219)

Science--machines — Grade 8; 30 students (1961-62).
Program with machine from a commercial source took students from 2 to 4 weeks to complete; used for enrichment as an informal experiment.

(Continued on next page)

USE OF PROGRAMED INSTRUCTION (Continued)

CABELL COUNTY, WEST VIRGINIA
(Continued)

Science--machines (Continued)	(Respondent reports, "Program was used in regular science classes to supplement textbook which was weak in this specific area. Knowledge of the subject was increased by use of this programed material.")
Grammar	Grades 9 through 12; 210 students (1963-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment. Is now considered as part of the regular school program.
Social studies--latitude and longitude	Grade 5; 120 students (1964-65). Programed text from a commercial source took students from 2 to 4 weeks to complete; used as part of the regular course in an informal experiment.

* * *

HARRISON COUNTY, WEST VIRGINIA
(Clarksburg) (15,370)

Algebra	Grade 10; 28 students (1964-66). Programed text from a commercial source took students 1 year or more to complete; used as part of the regular course. (Respondent reports, "The program was used with a class of 10th-grade students who were not ready for Algebra I in the ninth grade. A few finished the course before the year's end and started the second course; about half the class finished the course in eleventh grade. From our experience, we would prefer to use the program as enrichment material to supplement the regular class.")

* * *

MARION COUNTY, WEST VIRGINIA
(Fairmont) (12,676)

Arithmetic	Grades 4, 5, and 6; 2,961 students (1964-66). Programed texts from a commercial source took students 1 year to complete; used for enrichment. (Respondent reports, "Program used with students to acquaint them with symbols, vocabulary, and basic concepts of modern elementary mathematics, and to provide enrichment for pupils who needed this experience. Participating students reacted quite favorably; the program provided an incentive for inservice training for teachers.")

* * *

RALEIGH COUNTY, WEST VIRGINIA
(Beckley) (19,216)

Algebra	Grade 9; 450 students (1961-63). Programed text from a commercial source took students 1 year to complete; used as the complete course in an informal experiment.
English	Grade 9; 70 students (1962-63). Programed text from a commercial source took students 1 semester to complete; used as part of the regular school program.

* * *

USE OF PROGRAMED INSTRUCTION (Continued)

KENOSHA, WISCONSIN (18,295)

Reading	Grade 1; 27 students (1965-66). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment.

* * *

CASPER, WYOMING (14,106)

Algebra	Grade 9; 70 students (1961). Program with machine from a commercial source took students 1 semester to complete; used as part of the regular course.
Grammar	Grade 8; 45 students (1964-65). Programed text from a commercial source took students 1 week to complete; used for remedial work. (Respondent reports, "The program was used merely as a remedial device. Students who had difficulty with any phase of grammar came in before school time to work through portions of the book that applied to their problems.")
Grammar	Grade 12; 92 students (1965-66). Programed text from a commercial source took students from 1 to 3 months to complete; used for remedial work and as part of the regular course in an informal experiment.

* * *

CHEYENNE, WYOMING (14,167)

Grammar	Grade 10; 60 students (1960-61). Programed text from a commercial source took students one year to complete; used as part of the regular course in an informal experiment.
Reading	28 students (1964-65). Programed text from a commercial source took students 1 year to complete; used as part of the regular course in an informal experiment.

* * *

SURVEY OF
PROGRAMED INSTRUCTION

QUESTIONNAIRE FORM

Educational Research Service, NEA
September 1965

The purpose of this survey is to obtain an over-all picture of the uses of programed instruction in the schools today. For that reason, the survey is limited to questions of a general nature, and is not a detailed inquiry into the specifics of programed instruction itself. The results of this survey will be published as an Educational Research Service Circular.

* * *

INSTRUCTIONS: Each horizontal "Band" on this questionnaire may be used to describe one use of programed instruction in your school system. Five such Bands are provided. If your system has made use of more than five programs, please choose the five which are most typical. In cases where a specific program has been used in more than one way (as a part of the regular course in 1963-64 and for remedial work in 1964-65, for example) you may do either of two things. You may list the primary application of the program only, or you may enter the program a second time, in another Band. If a program is entered twice, please indicate this partial duplication in Column 4.

If an explanation is required to clarify any of your replies, please attach a separate sheet, with your comments keyed to the Band and column numbers.

For your guidance, a sample Band has been completed on the questionnaire. Each item is discussed separately, below.

Column 1. List separately the school years in which the program has been used in this specific application.

Column 2. Indicate the number of students using the program each year.

Column 3. Show the grade level(s) at which the program was used.

Column 4. Describe the subject content of the program. (The sample indicates that another application of this program is described in Band 2.)

Column 5. Indicate the specific area of content which is programed. If the program covers a complete course (a year of chemistry, for example) no entry need be made in this column.

Column 6. Give an estimate of the average time used to complete the program.

Column 7. Differentiate between programed texts and programs used in teaching machines.

Column 8. Relate the use of the program to the total offering in the subject.

Column 9. Indicate the source of the program. If the program was created within the system, this item should differentiate between a program produced by a teacher for use in his own class and one produced by a staff member, or group of staff members, for use in the system.

Column 10. Describe the status of the program at the time of its use.

Column 11. Evaluate the program, both objectively in terms of the program's success or failure, and also subjectively in terms of the reactions of pupils, parents, and teachers. Your evaluation should also indicate whether you: (a) plan to continue the program on a permanent basis, and perhaps expand it; (b) continue it on an experimental basis; or (c) discontinue its use.

THANK YOU FOR YOUR HELP IN THIS SURVEY.

Please print
or type replies

QUESTIONNAIRE FORM

School system _____ State _____

Person responding _____ Position _____

	School sessions in which program was used	Number of students using the program in each session	Grade level(s)	General subject	Specific topic if any	Average time to complete	Format
	1	2	3	4	5	6	7
SAMPLE BAND	1962-63	31	5	Arithmetic	Addition of	1 week ____	Programed text X
	1964-65	65	5	____	Fractions	2-4 weeks X	
	____	____	____		____	1-3 months ____	Program with
	____	____	____	(see Band 2)		1 semester ____	machine ____
	____	____	____			1 year or more ____	Other ____ (please describe)
BAND ONE	____	____	____	____	____	1 week ____	Programed text ____
	____	____	____	____	____	2-4 weeks ____	
	____	____	____		____	1-3 months ____	Program with
	____	____	____			1 semester ____	machine ____
	____	____	____			1 year or more ____	Other ____ (please descri
BAND TWO	____	____	____	____	____	1 week ____	Programed text ____
	____	____	____	____	____	2-4 weeks ____	
	____	____	____		____	1-3 months ____	Program with
	____	____	____			1 semester ____	machine ____
	____	____	____			1 year or more ____	Other ____ (please descri

QUESTIONNAIRE FORM

DO NOT WRITE IN THIS BOX

St. ____ SS. ____ En. ____

Use	Programmer or source	Status of program when used	Evaluation
8	9	10	11
ial _____ ment _____ of r course X _____ e describe) _____	Teacher _____ Other system employee(s) _____ University source X Commercial source ___ Other _____ (please describe) _____	Informal experiment X Controlled experiment _____ Part of regular school program ___ Other _____ (please describe) _____	Program used with accelerated class in 1962-63; regular class in 1964-65. Program was well received by pupils and parents. Teacher felt it was more effective with regular students than with the accelerated groups. We will use this program on an experimental basis in an accelerated 4th grade in 1965-66.
ial _____ ment _____ of r course _____ _____ e describe) _____	Teacher _____ Other system employee(s) _____ University source ___ Commercial source ___ Other _____ (please describe) _____	Informal experiment _____ Controlled experiment _____ Part of regular school program ___ Other _____ (please describe) _____	
ial _____ ment _____ of r course _____ _____ e describe) _____	Teacher _____ Other system employee(s) _____ University source ___ Commercial source ___ Other _____ (please describe) _____	Informal experiment _____ Controlled experiment _____ Part of regular school program ___ Other _____ (please describe) _____	

For Bands 3, 4, and 5, see back of this page

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